

**PROCESSES AND EFFECTIVE ANALYTICAL TOOLS FOR STRATEGIC
PLANNING IN THE CONSTRUCTION INDUSTRY**

by
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ABSTRACT

As change in the world and in the construction industry accelerates, construction companies have to tackle more challenges in the future. The extent to which a company can effectively select and achieve a corporate strategy is directly related to its strategic planning process; and often, the strategic planning process is based on organizational structure. In other words, different organizational structures have different strategic planning processes. Each element of an organizational structure has specific functions related to strategy formulation and implementation. Hence, how to define and implement a strategic planning process and how to select effective analytical tools for developing strategies have become of critical importance for construction companies.

This thesis identifies strategic planning processes and effective analytical tools for developing strategies in construction firms based on the features of various different organizational structures. Because of the unique characteristics of the construction industry, the thesis describes appropriate modifications to a number of analytical tools for strategic planning. In addition, a framework developed by Henry Mintzberg is also applied in the thesis to classify different organizational structures. Finally, a construction company in Taiwan is presented as an example of the application of the methods and findings of the thesis.

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CHAPTER 1

INTRODUCTION

1.1. PURPOSE

The purpose of this thesis is to identify strategic planning processes and effective analytical tools for developing strategies in different construction firms based on the characteristics of various organizational structures.

1.2. SCOPE AND OBJECTIVES

1.2.1. Research Scope

Outside market opportunities determine a company's strategy, which in turn determines the company's organizational structure. Based on a knowledge of the nature and location of construction opportunities, a firm can find out: (1) in which market sector its business exactly wants to achieve; and (2) how the firm can accomplish its goals, such as carefully selecting a suitable organizational structure to execute its missions.

Organizational structure can play a critical role in influencing corporate strategy. Each part of the organization has its specific function. Some of them are directly related to strategy formulation, others are related to strategy implementation. This research is from the organizational structure point of view to identify the processes and effective analytical tools that could be applied for strategic planning. In other words, by analyzing the function which each basic part of the organization presents in different organizational structures, we can find out some effective ways to develop strategies.

1.2.2. Research Objectives

The objectives of this research are:

- (1) Overview the characteristics of the construction industry and international construction markets in different geographic regions and classified projects.
- (2) Explore the relationship between organizational structure and strategic planning.
- (3) Explain the basic elements of the organization and the basic analytical tools of strategic planning.
- (4) Illustrate the basic organizational structures.
- (5) Find the processes of strategic planning in different organizational structures.
- (6) Identify the effective analytical tools for strategic planning.
- (7) Apply the preceding concepts to a real case---a construction firm in Taiwan.

1.3. WORK PLAN OF THE RESEARCH

The work plan of this research can be illustrated in three ways:

- (1) The flow chart for conducting this research:

The process of conducting this study includes eight stages as shown as Figure 1-1.

- (2) Research approach:

The research approach involves the application of an analytical framework developed by Henry Mintzberg. This framework, which constitutes a synthesis of widely accepted findings in organizational theory, can be used to characterize the intrinsic organizational make-up of an enterprise. In addition, because this framework identifies the typical effects of a number of variables on the organizational characteristics of firms, it also can be used to help analyze which of these factors are exerting the greatest pull on an organization and influencing its character most strongly.

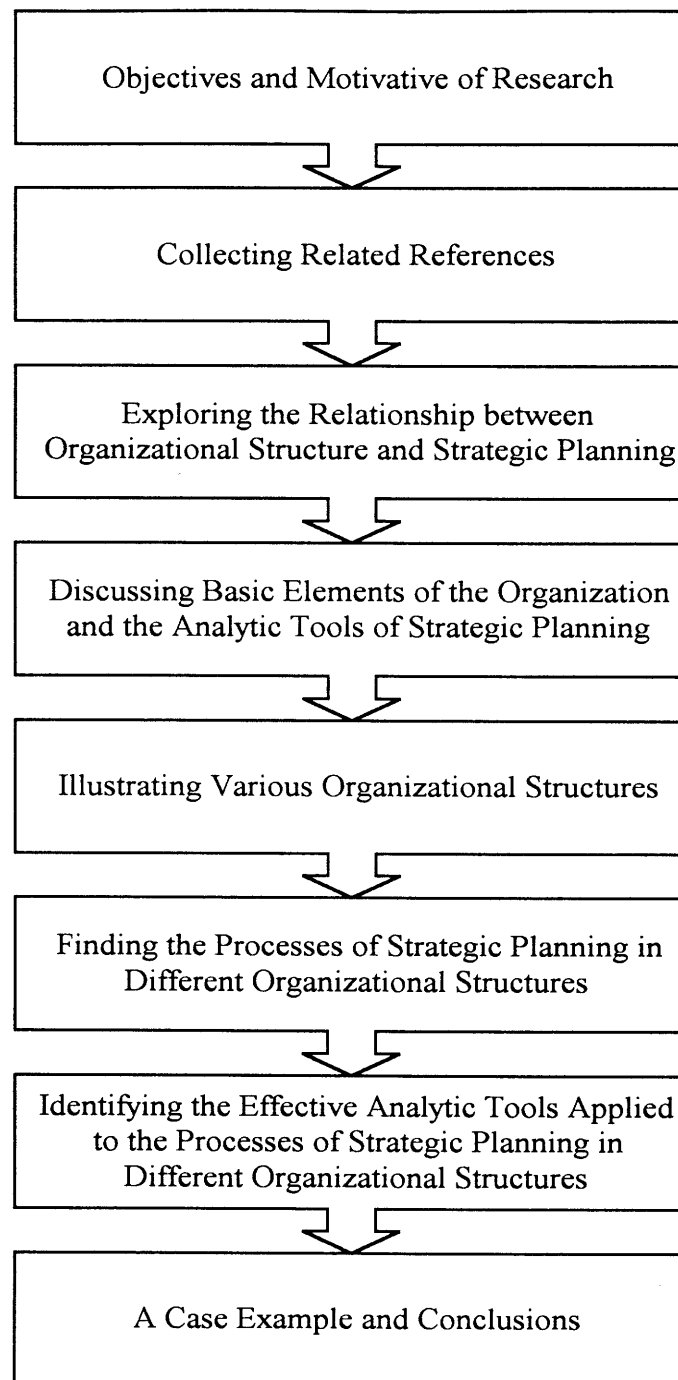


Figure 1-1. The Process of This Research

Some other analytical tools developed by Michael E. Porter, such as the five competitive forces, the value chain, the segmentation matrix, and the three generic competitive strategies are also applied in this study.

(3) The structure of the thesis:

Results of the research are presented in the following chapters:

CHAPTER 2: THE CONSTRUCTION INDUSTRY AND ITS MARKETS

This chapter describes the importance and characteristics of the construction industry, and also provides information on the construction markets.

By knowing what the characteristics of the industry are, and where the markets are in this era, construction companies can develop their strategies more efficiently and effectively. Moreover, this chapter also describes the importance of organizational structure, the importance of strategic planning, and the relationship between them.

CHAPTER 3: BASIC ELEMENTS OF THE ORGANIZATION

This chapter describes the basic elements of the organization, including five visible parts---the operating core, the strategic apex, the middle line, the technostructure, the support staff, and one invisible part---the ideology. Additionally, this chapter also talks about what functions each basic element performs and how these functions interrelate with each other.

CHAPTER 4: BASIC ANALYTICAL TOOLS OF STRATEGIC PLANNING

This chapter discusses the basic analytical tools of strategic planning, such as the five forces model, the value chain, the SWOT (strengths, weaknesses, opportunities, and threats) analysis, the segmentation matrix, and the three

generic competitive strategies. In addition, this chapter also shows us what these tools are for, when to use them, how to apply them, and why they are so important for strategic planning.

CHAPTER 5: ORGANIZATIONAL STRUCTURES

After presenting the basic elements of the organization and the basic analytical tools of strategic planning, this chapter introduces five basic organizational structures which were developed by Henry Mintzberg. By examining the processes of strategic planning in different organizational structures, we identify what effective analytical tools should be chosen and applied to these processes.

CHAPTER 6: A CASE EXAMPLE & CONCLUSIONS

In this chapter, we select a construction company in Taiwan and apply the preceding findings and discussions to its situation. Then, we summarize the final conclusions of this research.

CHAPTER 2

THE CONSTRUCTION INDUSTRY AND ITS MARKETS

What is the construction industry? By understanding the role of the construction industry in the national economy, identifying the unique characteristics of the industry, knowing how competitive the construction industry is, and investigating where the future construction markets are, more or less, we can find out the answer.

2.1. THE CONSTRUCTION INDUSTRY

2.1.1. The Importance of the Construction Industry

The construction industry in most of countries is very important for the functioning of their national economy. Variations in the level and the rate of investment are considered by economists to be significant in determining total economic activity. In the long run, the volume of investment in buildings, manufacturing plants, transportation projects, industrial/petroleum works, power factories, sewerage systems, hazardous waste plants, and other structures largely determines the capacity of national economy to produce and distribute the goods and services needed by consumers. In other words, an understanding of the fluctuations of investment activity in the construction industry is necessary for an understanding of the fluctuations in income and employment in the total economy.

The construction industry in recent years has contributed more than \$3.2 trillion dollars in terms of the annual value of world construction put in place. This is about 6.5 percent of the world's Gross Domestic Product (GDP). In the U.S., directly and indirectly, the construction industry accounts for 10 to 12 percent of the United States GDP and employs more than 5.6 million workers including about 4.6 million contract

construction employees, and one million construction workers employed by entities such as utilities, industrial companies, and government agencies. In addition, this number excludes about 1.4 million self-employed proprietors and working partners in contract construction.¹

2.1.2. The Characteristics of the Construction Industry

Every industry has its own culture and behavioral patterns. Basically, there are eight main characteristics of the construction industry: (1) high risks and uncertainties; (2) large scale, long completion time product; (3) flexible prices of structures; (4) unique bidding system; (5) strong localized nature; (6) relative subcontracting system; (7) contingent, informal communication system; (8) considerable hand tool technologies. These characteristics are briefly described in the following paragraph.

(1) High risks and uncertainties: risk and uncertainty are major factors in the construction procedure, including the design process, the bidding process, the awarding of contract, and so on. During these processes, there are several uncertainties. For instance, the owners or authorities may suddenly throw out all bids for some reason, such as the bids came in over the engineer's original estimate. In addition, at the work site, conditions may be quite different from what was contained in the original plan. For example, unpredictable disasters, such as earthquake, hurricanes, can cause a great deal of damage.

(2) Large scale, long time products: the final product of the construction industry is heavy, expensive, and large scale and takes a long time to be completed. It is required over a wide geographical area and made specially to the requirements of each individual customer. Moreover, because it takes so long to build most major projects,

¹Sources are from Construction Review, 1994

something unexpected is bound to happen, such as economic recession, inflation, cutoff of funds, strikes, and labor shortages.

(3) Flexible prices of structures: pricing in the construction industry is unique. Unlike many other industries, which issue a catalogue of their products with accompanying prices, there is no catalogue of prices of buildings or structures. In the construction industry, the sales prices of the products cannot be decided in advance. It is only when the nature of the desired product is determined through designed plans and specifications that it can be priced exactly and correctly.

(4) Unique bidding basis: each construction structure is priced separately and distinctly in the form of a bid for that particular project. Bidding arrangements can vary, depending on whether the contract is let on a lump-sum, fixed cost, cost-plus, or guaranteed maximum price basis.

(5) Strong localized nature: every country has its own construction industry; and most localities within a country, have their own construction firms. The reason is the nature of the construction product. It is bulky, costly, and unique to a particular site. No factory can produce subways, dams, or buildings and then ship the finished project to a site. Most of the projects rely heavily on many subcontractors, local labor forces and materials. In most countries, the top 20 construction firms do not constitute more than five percent of the total receipts of the construction industry.²

(6) Relative subcontracting system: the subcontracting system is special in the construction industry. The general contractors cannot do everything. They don't have the know-how and they don't have enough the manpower or supervision. They must rely on the subcontractors. The subcontracting system in the construction industry permits the kind of flexibility required whereby various mixes of contractors, and crafts must be mobilized to suit the unique requirements of a particular project. Then, when

²Stallworthy, E. A. & O.P. Kharbanda, *International Construction*. Gower Publishing Company, 1985.

the project is over, the contractors disperse. Subcontractors make possible the rapid mobilization and dismissal of crafts for a project as changes in the kind and volume of the construction demand vary.

(7) Contingent, informal communication system: the formal system assumes that everything is clear on the plans and in the specifications and contract. Perhaps in some other industries this is correct but not in the construction industry. Face to face relationships and acceptance of verbal decisions without formal procedures are normal methods of operating construction projects. Most of problems which happen on the site have to be solved as soon as possible. For instance, the concrete plant which is supposed to deliver your material breaks down, the temperature drops below freezing and you cannot pour the bridge deck concrete, or steel is the wrong size. All those things require shifts in plans and decisions and there is no time to follow the formal lines of communication. In other words, sometimes you have to act on your own, and you are expected to. Even though construction is increasingly becoming formalized, with a stress on documenting decisions and lots of letter writing, the predominant mode of operations on the job site is still contingency and informality.

(8) Considerable hand tool technologies: automation can bring industry revolution. This is happening in many industries, especially the manufacturing industry. But the construction industry is one of the few industries which still relies heavily on hand tools and a handicraft technology. Ownership of tools and skills by the craftsman leads construction management to rely on the skilled worker to create the product. Most craftsmen in the industry are required to provide their own hand tools, and this is what gives the craftsman control over the work process. Even the engineers and architects have to rely on the craftsmen to interpret their plans and carry out their intentions.

In conclusion, the construction industry must operate in constantly changing environments and conditions. Uncertainty and imprecision are critical elements in the

nature of the construction industry. Such a complex industry is characterized by instability and wide fluctuations of activity. Besides, the social base of the construction industry is decentralized and locally oriented. This tends to limit the size of firms and the growth of large bureaucratic organizations. It also tends to stress informality, personal relations, and community---like networks through the boundaries and limits set by local and decentralized organizations. All these characteristics make strategic planning and organizational structure critical issues in terms of the future growth of organizations.

2.2. THE CONSTRUCTION MARKETS

In the increasing competitive decade of the 1990s, the world and the construction industry are changing rapidly, and that change is accelerating. Thus, a construction company cannot afford to depend on a single project, client, or market sector for its future work.

As any other business, a construction company has the same needs---to obtain work and to perform it profitably. It is impossible for any construction company to begin life with an annual volume of \$1 billion. Every construction company started small. The differences in size and profitability of contractors are directly related to each company's ability to find its markets. All these understandings refer to one key word---"marketing."

According to E.N.R.'s Survey of The Top International Contractors in 1994, the international construction market keeps growing. On the one hand, the competition among the construction firms cannot be avoided and has become much serious. On the other hand, it has brought many exciting challenges for the existing firms and even has guided them to another new era.

Most of the international construction firms are encountering not only stiff competition abroad but also new opportunities spawned by rapidly expanding free-

market economies. On one hand, " the international work levels are stable..., while competition keeps on growing..." says Karl Ronnberg, overseas director of Germany's Hochtief AG. On the other hand, because of the competition among the firms, " the price levels are depressed...", says Per Hofvander, president of Sweden's Skanska International Civil Engineering AB..

In addition, new international contracts for ENR's Top International Contractors has grown from \$146.5 billion in 1992 up to \$155.2 billion in 1993. From the point of view of geographic regions, the Asian market keeps growing and is one of the highest potential international construction markets since 1990 (See Figure 2-1 and Figure 2-2). Part of the reason is that in developing countries there is an overriding need for improved infrastructure, and this is reflected in the greater share of infrastructure in the total construction output.

The role of the public sector as a client of the industry in developing countries is probably generally greater than in developed countries since it is government---central or local government, which is responsible in most countries for the provision of infrastructure.

From the point of view of specific projects, although petroleum and petrochemical projects dipped slightly from 41% of all international contracts by volume in 1992 to 37% in 1993, these type of projects continued to be at the top of the international market (See Figure 2-3). Emmanuel Forest, the international general secretary of Bouygues SA., said that "the potential market for general building is decreasing and the future major market will be in civil work and large infrastructure...."

From a geographic point of view, American, Japanese and European construction firms account for almost 90% of the total international construction market (See Figure 2-4). Especially, Japanese construction firms dramatically boosted their rankings with a

surge of orders in 1993. The total awards to Japanese firms in the international market is about \$ 20 billion. In comparison with 1992, this is about 63% growth rate.

\$ billion

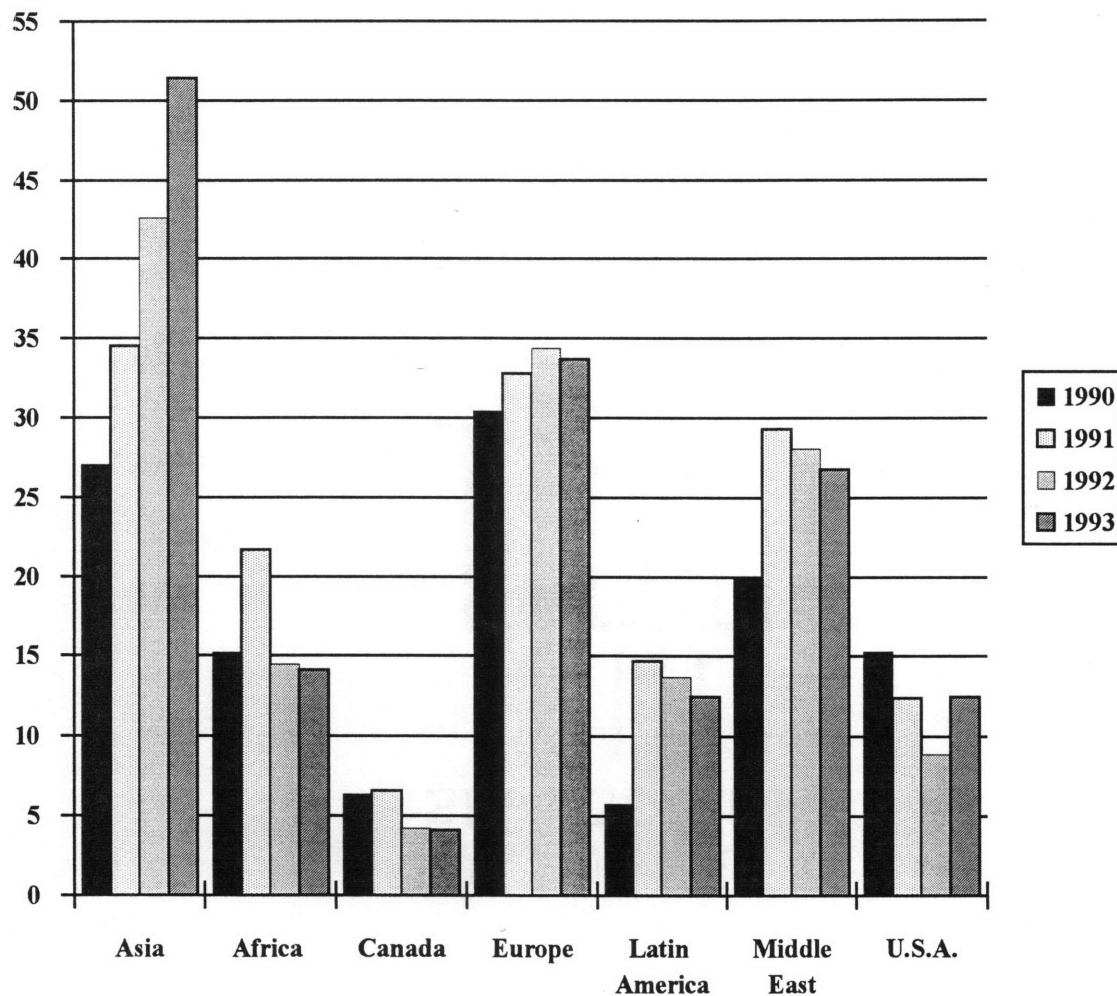


Figure 2-1. International Contracts³

³Sources are from ENR's Survey: The Top International Contractors

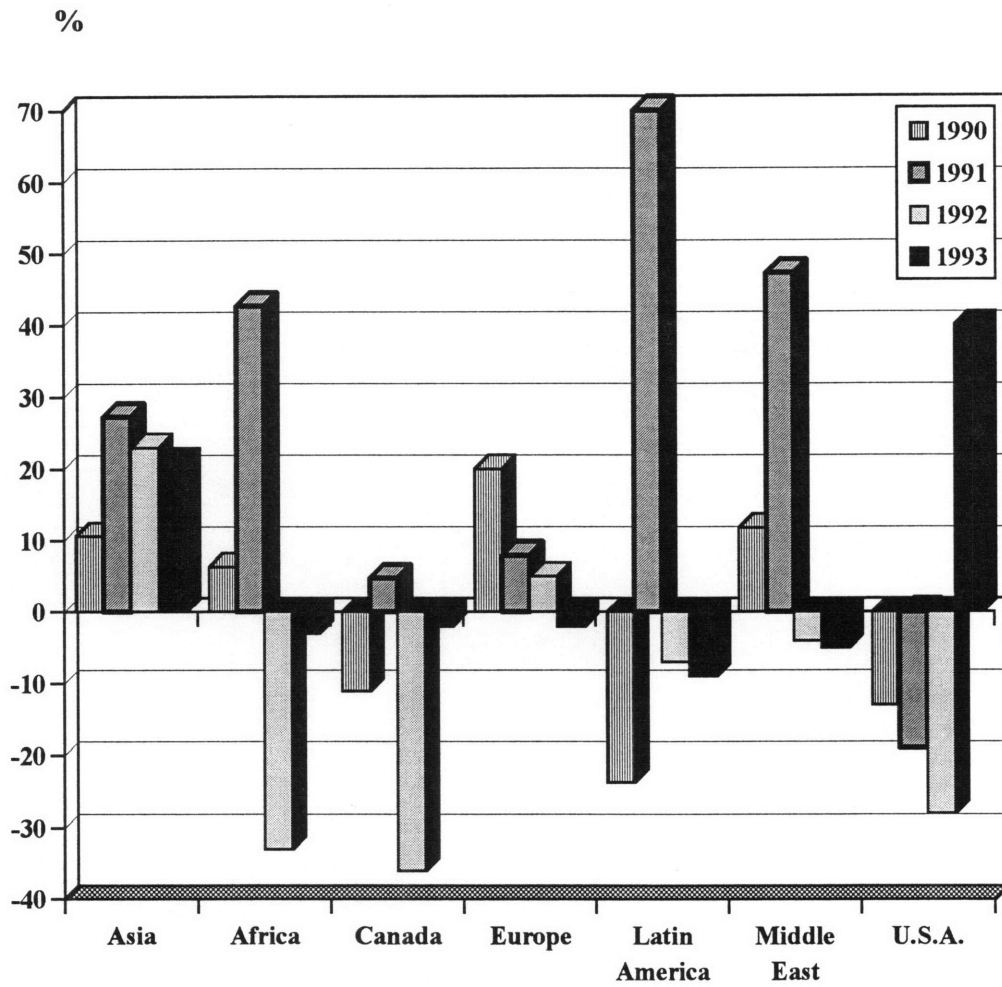


Figure 2-2. The Growth Rate of the International Contract⁴

⁴Sources are from ENR's Survey: The Top International Contractors

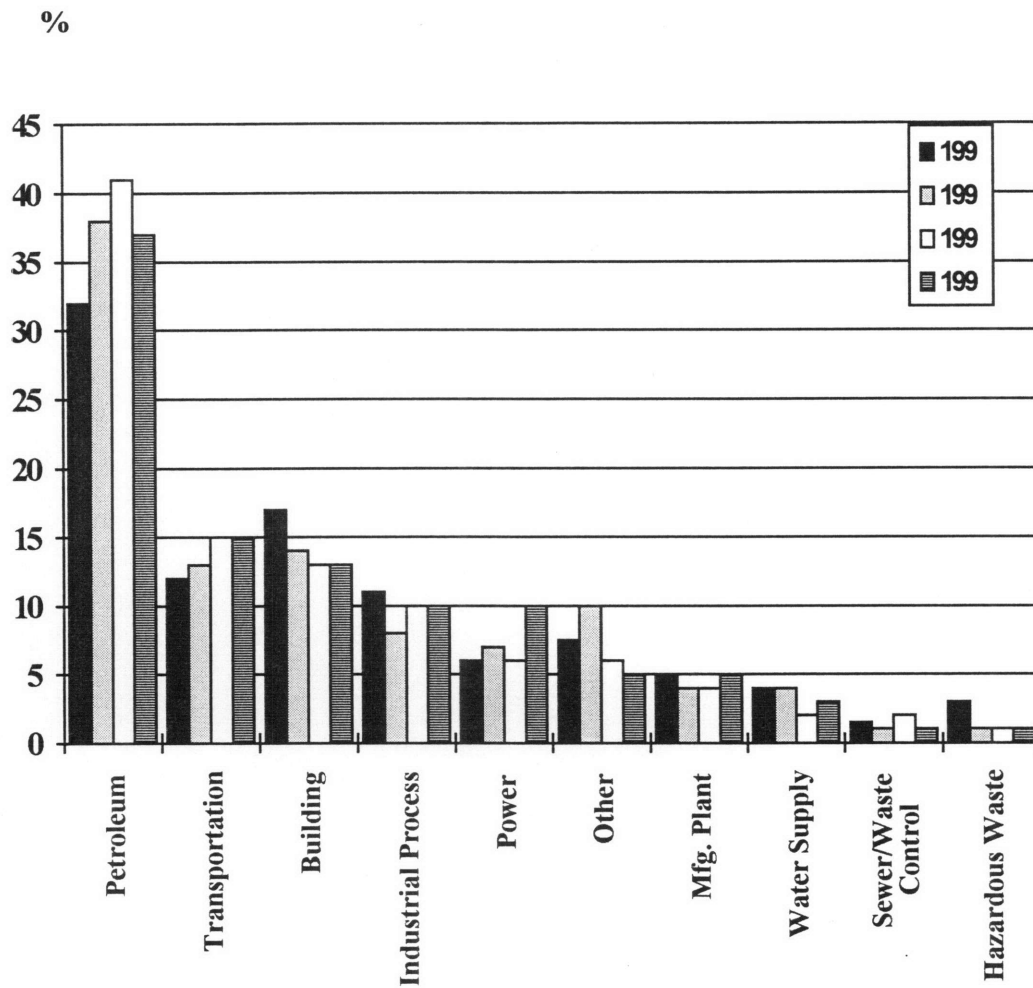


Figure 2-3. The Sharing Rate of Specific Projects in Overseas Contracts⁵

⁵Sources are from ENR's Survey: The Top International Contractors

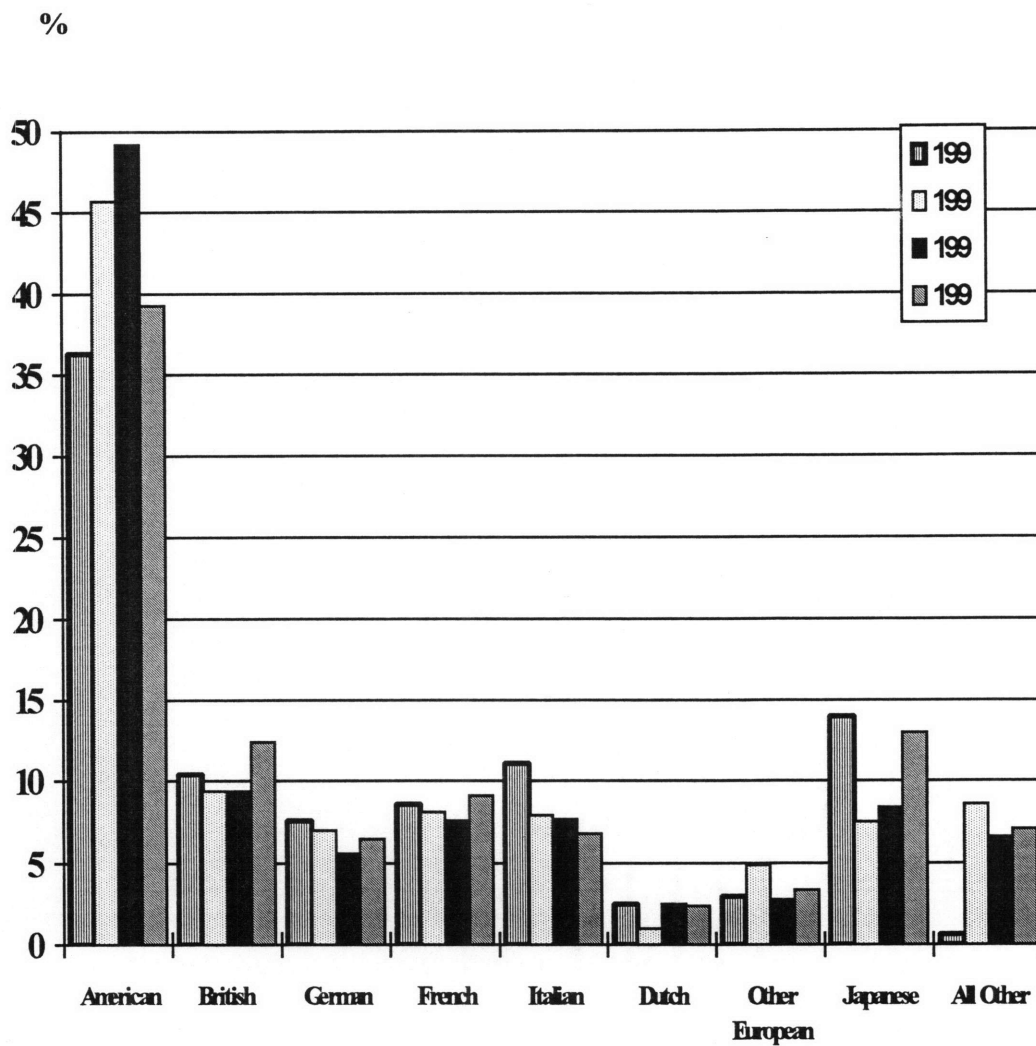


Figure 2-4. The Top International Contractors Shared the Construction Export Market⁶

⁶Sources are from ENR's Survey: The Top International Contractors

2.3. ORGANIZATIONAL STRUCTURE AND STRATEGIC PLANNING

Whether a construction company's goals for its business are increasing volume, showing higher profits, building a more dynamic organization, attracting better people, eliminating peaks and valleys in year-to-year revenue, entering new markets, or just improving its presentation techniques, or any combination of the above, effective strategic management can play a key role in making those goals a reality.

From this point of view, two main issues especially in the strategic management field have become much more critical: one is how to choose a suitable organizational structure; the other is how to select useful analytical tools and apply them to the process of strategic planning.

2.3.1. The Importance of Organizational Structure

An organization is a group of people with special purposes or common missions. Organizations are developed around the concept that a complex task can be subdivided into simpler components by means of division of labor. How to perform the division of labor and how to coordinate the resulting tasks are two main issues when people are selecting their suitable organizational structures.

Organizations are also the basic foundations for entrepreneurs. Through these foundations, entrepreneurs can approach their business goals either from a long-term or short-term point of view, in order to achieve their ambition in the industry. The correct structure should not only permit the efficient execution of short-term operational tasks but also facilitate the development and implementation of long-term directions for the business lines of the organization. However, before choosing a specific organizational structure, attention should be focused on policies for growth and diversification, which are the paramount concerns of strategic planning and superior to all others.

Since the choice of an appropriate organizational structure is related to the growth of a company, five distinguishable phases of evolution and revolution have to be considered for growing organizations. Each phase contains a relatively calm period of growth that ends with a management crisis, which is both an effect of the previous phase and a cause for the next phase⁷ (See Figure 2-5). In other words, "evolution stage" is presented by the period which a company maintains its growth; and "revolution stage" is presented by the period which a company turns crises into opportunities for future growth. These phases are briefly described as follows:

(1) Phase one is creativity: In the birth stage of an organization, the emphasis is on creating both a product and a market. At the end of this stage, because increased numbers of employees cannot be managed exclusively through informal communications, conflicts between the harried leaders grow more intense. This results in a crisis of leadership.

(2) Phase two is direction: Those companies that survive the first phase by installing a capable business manager usually embark on a period of sustained growth under able and directive leadership. At the end of this stage, because lower level employees have come to possess more direct knowledge about markets and machinery than do the leaders at the top, they are eager to take initiative on their own. This develops into a crisis resulting from demands for greater autonomy on the part of lower-level managers.

(3) Phase three is delegation: The next era of growth evolves from the successful application of a decentralized organization structure. Decentralized managers with greater authority and incentive are able to penetrate larger markets, respond faster to customers, and develop new products. But, at the end of this stage, because top

⁷Concepts from Larry E. Greiner, "Evolution and revolution as organizations grow," *Harvard Business Review*, July-August 1972.

executives begin to sense that they are losing control over highly diversified field operations, a serious problem eventually evolves---the control crisis.

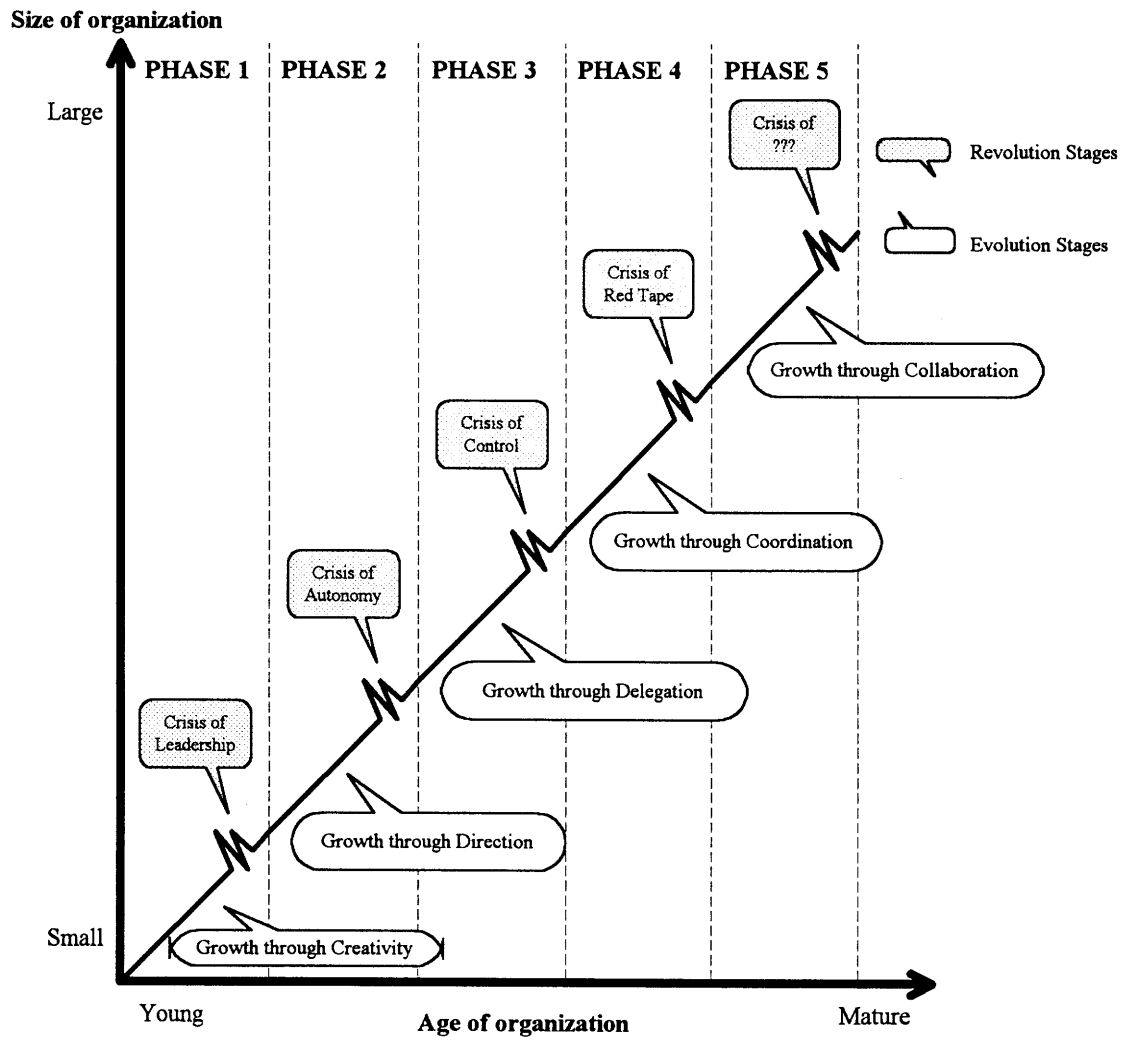


Figure 2-5. The Five Phases of Growth⁸

⁸Concepts from Larry E. Greiner, "Evolution and revolution as organizations grow," *Harvard Business Review*, July-August 1972.

(4) Phase four is coordination: During this phase, the evolutionary period is characterized by the use of formal systems for achieving greater coordination and by top executives taking responsibility for the initiation and administration of these new systems. For instance, formal planning procedures are established and intensively reviewed; stock options and company-wide profit sharing are used to encourage identity with the firm as a whole; or certain technical functions, such as data processing, are centralized at headquarters, while daily operating decisions remain decentralized.

At the end of this stage, because of an overemphasis on bureaucratic procedures, a proliferation of systems and programs begins to exceed their utility. In other words, because the organization has become too large and complex to be managed through formal programs and rigid systems, procedures has taken precedence over problem solving. This results in the creating of a red-tape crisis.

(5) Phase five is collaboration: The last phase emphasizes greater spontaneity in management action through teams and the skillful confrontation of interpersonal differences. At the end of this stage, employees probably become emotionally and physically exhausted by the intensity of teamwork and the heavy pressure for innovative solutions. The crisis occurring in this stage is variable and can *not* be predicted exactly.

In conclusion, each evolutionary period is characterized by one dominant management style used to achieve growth, while each revolutionary period is characterized by the dominant management problem that must be solved before growth can continue. The patterns presented in Figure 2-5 is typical for companies in industries with moderate growth over a long time period. Companies in faster growing industries tend to experience all five phases more rapidly, while those in slower growing industries encounter only two or three phases over many years.

The construction industry in Asia has been considered as one of the fastest growing industries and lots of international construction firms have been getting into

this potential market. Therefore, for the construction companies, combining the unique characteristics of the industry with a rapidly growing market, and turning organizational crises into opportunities for future growth, have become the most critical issues, in selecting appropriate organizational structures for different evolution stages.

2.3.2. The Importance of Strategic Planning

According to James Brian Quinn⁹, a strategy is " the pattern or plan that integrates an organization's major goals, policies, and action sequences into a cohesive whole." A strategic plan is just like the chart by which a firm will navigate its voyage. Having some sort of strategy is critical for any firm which is facing the strong competitive pressures and the increasing rate of change in today's business environment. A well-formulated strategy helps to marshal and allocate an organization's resources into a unique and viable posture based on its relative internal competencies and shortcomings, anticipated changes in the environment, and contingent moves by intelligent opponents.

In other words, a right strategy provides corporate executives an unique opportunity for integrating concepts from microeconomics and organizational theory and for applying them within their own organizations. Therefore, strategic planning involves some of the most fundamental issues about organizations as instruments for collective perception and action, instead of just being a notion of how to deal with a set of competitors or a market.

Moreover, strategic planning can be considered as a decision-making tool that is designed to help a company anticipate and respond to changes in the local economy. It emphasizes the connection between public and private sector resources and actions, and helps a company evaluate the strategic options for its investment. Basically, there are four iterative phases in the strategic planning process: (1) Economic audit---in which a

⁹ Excerpted from James Brian Quinn , *Strategies for Change: Logical Incrementalism*. Homewood, Ill.: Richard D. Irwin, 1980.

company focuses on the information of its economic environment, community resources and the barriers to the development; (2) Strategy development---in which a company selects specific development activities based on the results of the economic audit; (3) Program implementation---in which a company initiates a set of specific investments designed to strengthen the local economy; (4) Outcome assessment---in which a company reflects on accomplishments as well as the weaknesses of the chosen course of action and identifies ways to modify activities and correct emerging problems¹⁰ (See Figure 2-6).

2.3.3. The Relationship between Organizational Structure and Strategic Planning

We can approach the relationship between organizational structure and strategic planning from two different point of views: (1) one of the basic principles for organizational design is that structure follows strategy. Under this premise, organizational design must be viewed as an integral part of the strategic positioning of the firms; (2) another of the basic principles for strategic planning is that strategy follows structure and is based on knowing the organization's capabilities well enough to think deeply enough about its strategic direction.

In fact, strategy aligns an organization with its environment and deals with how leaders try to establish direction for organizations and set them on predetermined courses of action. And organization blends its structure, management practices, rewards and people into a package that in turn fits with its strategy.

Thus, with respect to the growth of a company, organizational structure and strategic planning are dependent and symbiotic. Neither of them can help a company to get to its marketplace and achieve its mission without the other. They need to approach the final destination hand in hand.

¹⁰Adapted from James E. Peterson, "Competitive Advantage---Framing a strategy to support high growth firms," *National Council for Urban Economic Development*, July 1984.

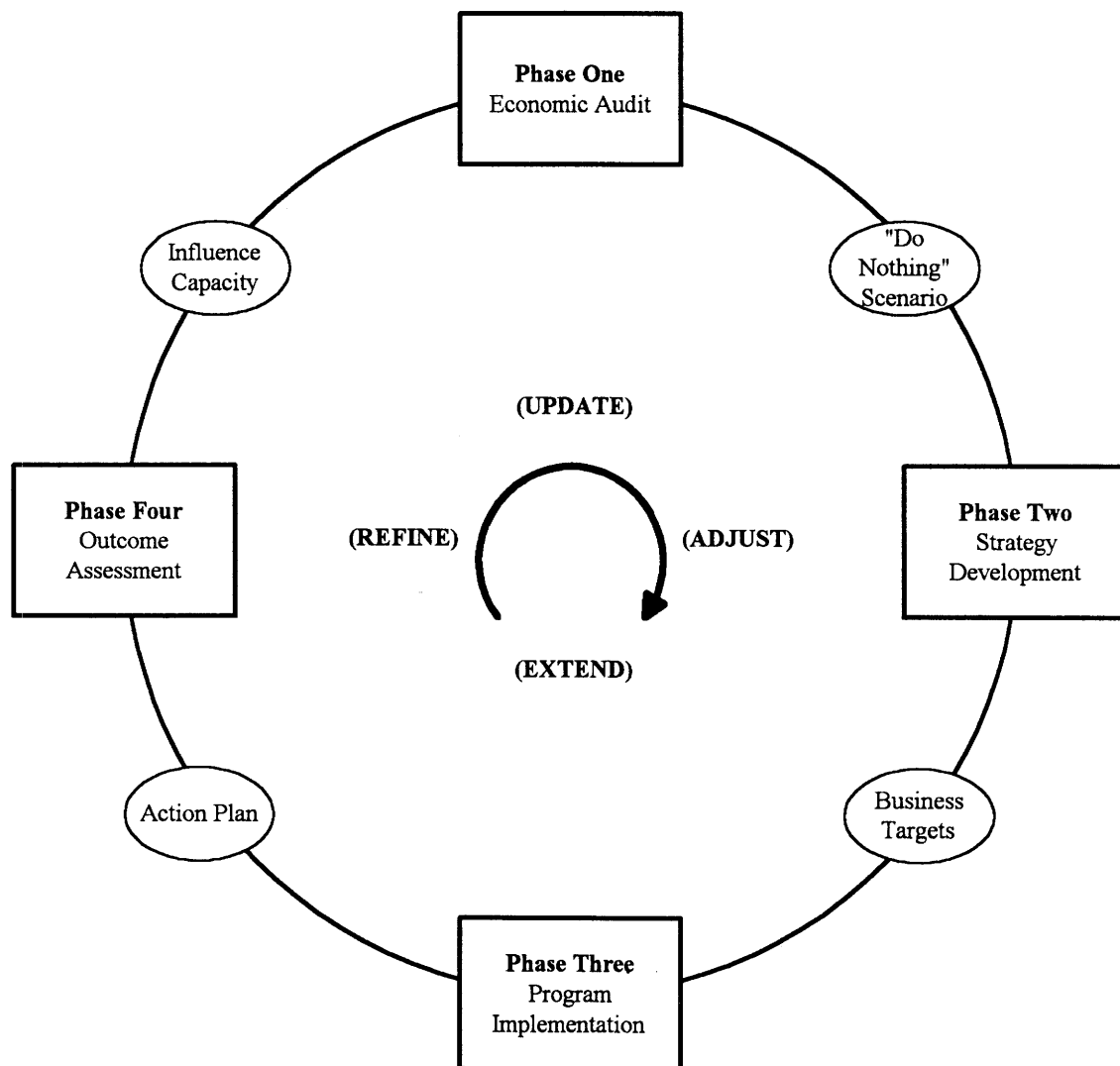


Figure 2-6. The Strategic Planning Cycle---Four Iterative Phases¹¹

¹¹The idea is from James E. Peterson, "Competitive Advantage---Framing a strategy to support high growth firms," *National Council for Urban Economic Development*, July 1984.

CHAPTER 3

BASIC ELEMENTS OF THE ORGANIZATION

Before discussing different organizational structures and analyzing the processes of strategic planning in these organizations, it is first necessary to describe the basic elements of the organization, the functions that each element performs, and how these functions interrelate with each other. Then, we need to know what the basic analytical tools of strategic planning are, what function each tool provides, where to use these tools, and how to apply them.

The basic portions of the organization include the visible portion and the invisible portion. The visible portion contains five elements, respectively, they are *the operating core*, *the strategic apex*, *the middle line*, *the technostructure*, and *the support staff*. The invisible portion contains one element called *the historical culture* or *the ideology*. All these six elements make up the organization¹² (See Figure 3-1). More details are described in the following paragraphs.

3.1. THE OPERATING CORE

The operating core, which is the base of any organization, includes all operators who perform the basic work related directly to the production of products and services. There are four main functions which are executed by the operators:

¹²Derived originally from Henry Mintzberg, *The Structuring of Organizations*. Prentice Hall, 1979; and *Power in and Around Organizations*. Prentice Hall, 1983.

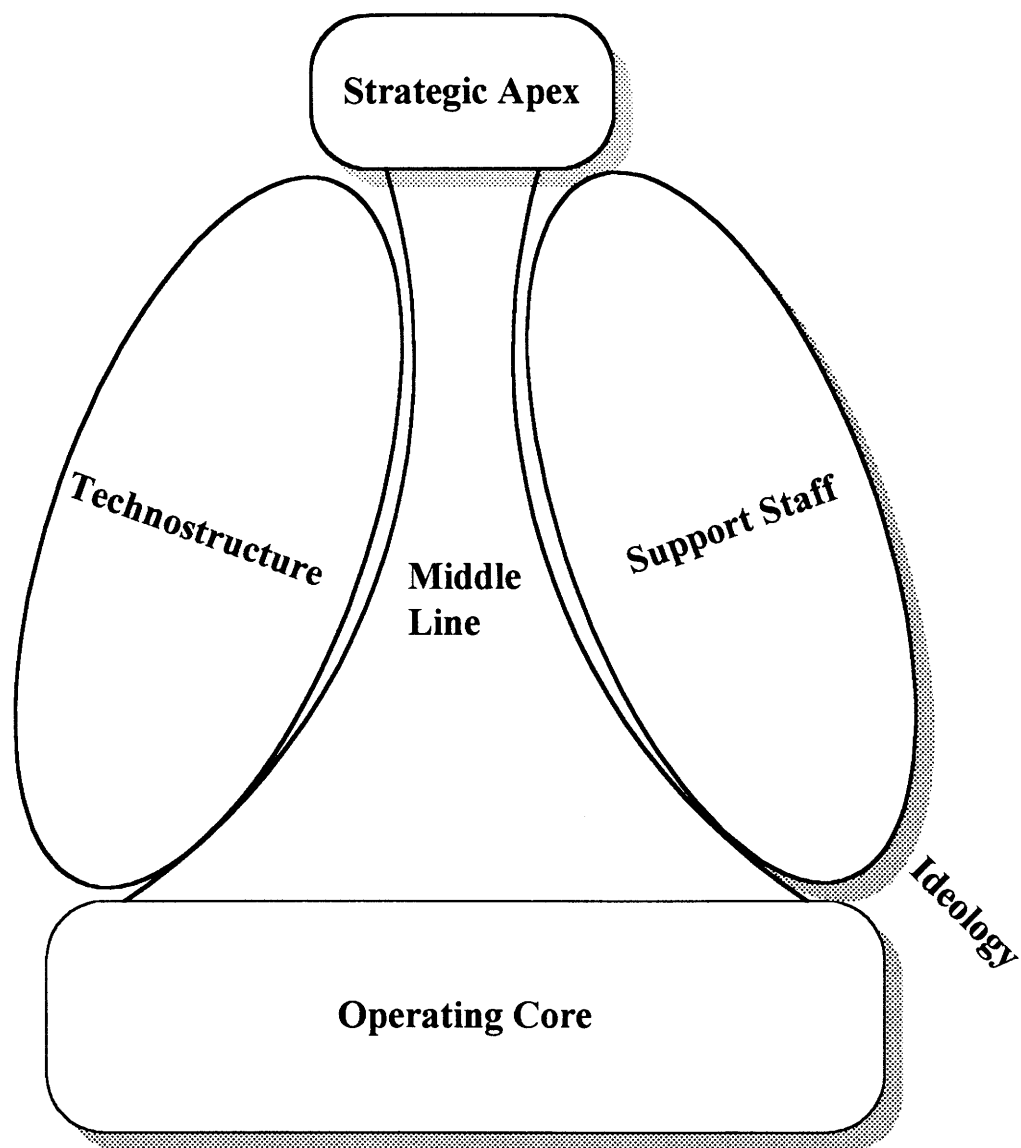


Figure 3-1. The Six Basic Elements of the Organization¹³

¹³Adapted from Henry Mintzberg & James Brian Quinn, *The Strategy Process: Concepts and Contexts*, Prentice Hall, 1992.

The first function is *to secure the inputs for production*. For instance, in a construction firm, the purchasing department buys the wall panels, floor slabs, and other construction materials and the receiving department takes them in the door; or in a construction materials supplying firm, the purchasing department buys the cement and the receiving department takes it in the door.

The second function is *to transform the inputs into outputs*. Some organizations transform raw materials into final product. For example, a general contracting firm transforms construction materials such as wall panels, floor slabs, and so on into a residential building; or a prefabrication factory transforms raw materials such as cement, sand, and steel reinforcing bars into wall panels and floor slabs. Others transform individual parts into complete units. For example, a construction management firm transform knowledge and information into written consulting reports.

The third function is *to distribute the outputs*. Normally, most construction companies don't need to distribute their outputs. They are hired to build a building or project for construction purchasers---the owners. But, in some cases, if construction companies are not only the contractors but also the owners, they have to sell their projects to customers. For instance, a construction firm sells a finished residential building to its clients. In some other cases, if construction firms integrate their services backwards to include supplying materials, they also have to sell these products to customers. A concrete firm, for instance, sells pre-mixed concrete to a general contractor and distributes the concrete to the construction site.

The fourth function is *to provide direct support to the input, transformation, and output functions*. For example, a construction firm inventories construction materials, sells the finished buildings, and repairs any defects of the buildings during the guarantee period; or a concrete firm inventories the raw materials, and performs maintenance on the operating machines and the delivery transportation tools.

3.2. THE STRATEGIC APEX

The strategic apex, including the chief executive officer (CEO) and top level managers, is charged with ensuring that the organization serves its mission in an effective way, and also that it serve the needs of those people who have power over the organization (such as owners, government agencies, unions of the employees, pressure groups). Therefore, the people in the strategic apex are charged with overall responsibility for the organization. There are three prime duties which the strategic apex has to perform.

The first duty is *direct supervision*. This means the strategic apex has to ensure that the whole organization functions smoothly as a single integrated unit. In the construction industry, for example, the CEO delegate responsibilities to senior officers (such as the chief marketing officer, the chief financial officer, the chief operating officer, the director of personnel and administration, and the public relations director) who will each fulfill those management functions assigned to them. The CEO have opportunity to coordinate and directly supervise the organization without becoming bogged down in details of construction projects. In other words, through these senior officers the CEO can establish the systems and procedures by which he or she can keep himself or herself constantly informed, and in control of the operations and financial functions of the organization.

The second duty is *the management of the organization's boundary conditions---its relationships with its environment*. For example, sales is a key issue in a firm's success. In the construction industry, most products are large scale, and take a long time to be finished. If the construction companies cannot continuously have incoming work, there can be no resultant profit. Thus, the managers of the strategic apex must spend a good deal of their time acting in the roles of: spokesman, in informing influential people in the environment about the organization's activities; negotiator, when major

agreements must be reached with outside parties; cheer leader, for the sales group in order to stimulate their effectiveness and efficiency; and, sometimes even entertainer, for prospective senior level clients by socializing with them in any related civil and community activities.

The third duty is *the development of the organization's strategy*. It is the strategic apex's responsibility to provide senior management with planning objectives and goals. A strategic plan which guides a company toward achievement of its goals, is vital to a company's success. It is like a compass by which the company will set its course. Strategy may also be viewed as a mediating force between the organization and its environment. Therefore, strategy formulation involves the interpretation of the environment and the development of consistent patterns into streams of organizational decisions to deal with it.

For example, the strategic plan is prepared on a certain year basis. It is updated through the yearly business plan. Normally, parts of the strategic plan will remain constant, such as a firm's overall goals, and other parts will be changed, such as executive plans for achieving the goals. Since the construction industry is a high risk and uncertain business, it is common that executive plans that are established at the first of the year could be revised three or four times before year end. Accordingly, the strategic apex should pay attention to each move of organizational behaviors at any time and adjust organization's strategy in such a changeable environment.

3.3. THE MIDDLE LINE

The middle-line manager with formal authority is the bridge which connects the operating core and the strategic apex. This bridge includes the senior managers just below the strategic apex to the first-line supervisors, who have direct authority over the operators. Especially, when the organization is large and reliant on direct supervision for

coordination, it requires middle-line managers. For example, in construction companies, the project managers or superintendents are the middle-line managers. They are the people who directly supervise their own projects, collect feedback information on the performances of their own units, and report to the director of construction operations.

Generally speaking, the middle-line manager performs all the managerial roles of the strategic apex, but in the context of managing his/her own unit or project. For instance, he/she has to serve as a figurehead for the unit and lead its members; allocate resources within the unit; monitor the environment and give commands to his/her own unit; negotiate with outsiders; and handle exceptions and conflicts.

3.4. THE TECHNOSTRUCTURE

The technostructure is formed by the analysts who serve the organization by influencing the work of others. In other words, these analysts are removed from the operating work flow---they may design it, plan it, change it, or train the people who do it, but they do not do the work themselves. In the construction industry, for example, the people who work in the design and planning department are the technostructure. They are the designers or project planners and maybe specify the use of the latest materials or new technology in the projects, but they are not the people who really do the on-site construction work. Therefore, the technostructure is effective only when it can use its analytical techniques to make the work of others more effective.

In the construction industry, the technostructure may perform at all levels of the organization. For instance, at the operating core level, they can standardize the operating work flow by scheduling construction projects, and by instituting systems of quality control; at the strategic apex level, they can design strategic planning systems or develop financial systems to control the goals of major departments; at the middle line

level, they can seek to standardize the intellectual work of the organization by training project managers and superintendents.

3.5. THE SUPPORT STAFF

The support staff is comprised of the people who provide support to the organization outside the operating work flow. A great many of their services could be purchased from outside suppliers, yet the organization may choose to provide them itself. Several reasons that the organization may want to encompass more and more boundary activities are to reduce uncertainty and exercise greater control over its own affairs. For example, by establishing a sports club, the company can increase the communication among employees; or by feeding their own employees in the firm's cafeteria, the lunch period can be shortened and the quality of the nutrients in their food can be maintained.

The support staff can be found at various levels of the organization. For example, in some construction firms, senior advisors, public relations and legal counsel are located near the top, since they directly provide related information on construction markets and tend to serve the strategic apex directly without going through project managers and superintendents. The computer office, secretariat, and administration are at the middle level. They provide their skills and services to the whole organization. The cafeteria, mailroom, and cashiers office are at the lower level, they provide general supports or services to the organization.

3.6. THE IDEOLOGY

From an organizational structure point of view, the ideology, which is also called the historical culture or organizational culture, is the only invisible portion of the organization. It is an abstract concept which encompasses the traditions and beliefs of an

organization that distinguish it from other organizations and infuse a certain life into the skeleton of its structure.

The key feature of the ideology is its unifying power. In other words, the ideology ties the individual to the organization, generates a sense of mission, and creates an integration of individual and organizational goals that can produce synergy.

There are three stages which we can find in the development of the ideology in an organization. The first stage is *the rooting of ideology in a sense of mission*. The roots of the ideology are planted when a group of individuals band together around a leader and establish a vigorous organization, or invigorate an existing organization. The individuals who come together don't do so at random, but they coalesce because they share some values associated with the fledgling organization. For instance, in the construction industry, the founders of companies have similar perspectives and concepts on future construction markets. Other members of these companies agree with the leaders' points of view and thus are willing to devote their capability and effort to the companies.

The second stage is *the development of ideology through traditions*. When a new organization establishes itself or an existing organization establishes a new set of beliefs, it makes decisions and takes actions. Gradually, the organization establishes its own unique sense of history, thus creating a body of tradition. Through tradition, the ideology is strengthened. In the construction industry, because of *its strong localized nature*, the ideology is strongly related to the local traditional culture. For example, in general, eastern culture is more conservative than western culture. In eastern countries, China is one of the oldest countries with over five-thousand-year culture. Chinese national character have been forged in the furnace of past events. In western countries, America is a relatively young country with a 200 year culture and its strong individualism is rooted in the early settlers' desire to be set free from tyranny and oppression. Different

national characters have been reflected in their business markets and also presented in the organizational structure of companies. Before a construction company decide to go into any international construction arena, it must evaluate the impacts caused by the local traditional culture. Most international construction companies have to modify their traditional strategies, which have been successful in their own countries. In these cases, the ideology of the companies are influenced directly and indirectly by changes of strategies.

The third stage is *the reinforcement of ideology through identifications*. This stage happens in existing organizations. When new members enter the organization and identify with its system of beliefs, the existing ideology is reinforced. New members are chosen to fit in with the existing beliefs, and positions of authority are likewise filled from among the members exhibiting the strongest loyalty to those beliefs. For example, if in order to extend construction markets, new marketing manager may identify a need to move into international markets. In this case, the firm reinforces its existing ideology by providing the same products, such as general contracting services and construction management, to the same types of buyers, such as highways and commercial buildings but in different geographical regions.

In conclusions, as shown in the Figure 3-1, an organization hierarchy begins from a small strategic apex which is connected by a flaring middle line to a large, flat operating core at the base. These three parts of the organization are drawn in one uninterrupted sequence to indicate that they are typically connected through a single chain of formal authority. The technostructure and the support staff are shown off to either side to indicate that they are separate from this main line of authority, influencing the operating core only indirectly. The ideology is shown as a kind of shadow that surrounds the entire system.

Basically, an organization can be established by the combination of any these six basic elements. But the organizational structure shown in Figure 3-1 do not always look like this. Like amoebae, the organizational structure could be established by every company's own characteristics and adjusted by the changes of its internal or external environments. More details will be discussed in Chapter 5--- Organizational Structures.

CHAPTER 4

BASIC ANALYTICAL TOOLS OF STRATEGIC PLANNING

On the way to the year 2000, the world and the construction industry are changing rapidly, and that change is accelerating. "Every day new markets emerge, older markets shrink, opportunities arise, funding shifts, government regulations multiply, business cycles alter, competition tightens, and inflation exacts its relentless and invisible tax on a company's capital. It is clearly becoming increasingly difficult to manage a construction business in today's environment....," says Seigi Rashiro, senior consultant of Kajima Corporation.¹⁴

The effective construction executive needs to choose effective analytical tools for strategic planning so that he or she can successfully steer the company through a sea of change. This chapter describes some of useful analytical tools for strategic planning and explain what these tools are for, when to use them, why they are so important, and how to apply them. These tools have been extensively applied in other business sectors, and are continuously refined. They also hold great potential for helping construction enterprises to meet the challenges and opportunities in this competitive era.

4.1. THE FIVE COMPETITIVE FORCES MODEL¹⁵

The five forces model is a tool that can show the state of competition in an industry. The five forces model includes five basic competitive forces: (1) the threat of new entrants; (2) the threat of substitute products; (3) the bargaining power of suppliers;

¹⁴Adapted from the speech in the 4th Confederation of International Contractors' Associations Conference.

¹⁵Originally derived from Michael E. Porter, *Competitive Advantage*, The Free Press, 1985.

(4) the bargaining power of buyers; and (5) rivalry among existing firms (See Figure 4-1).

When a company wants to know the potential industry profitability and rapidly identify the crucial structural features determining the nature of competition in the industry, the five force model provides relevant information. This information can also help the firm find a position in the industry where it can best defend itself against these forces or directly influence them in its favor.

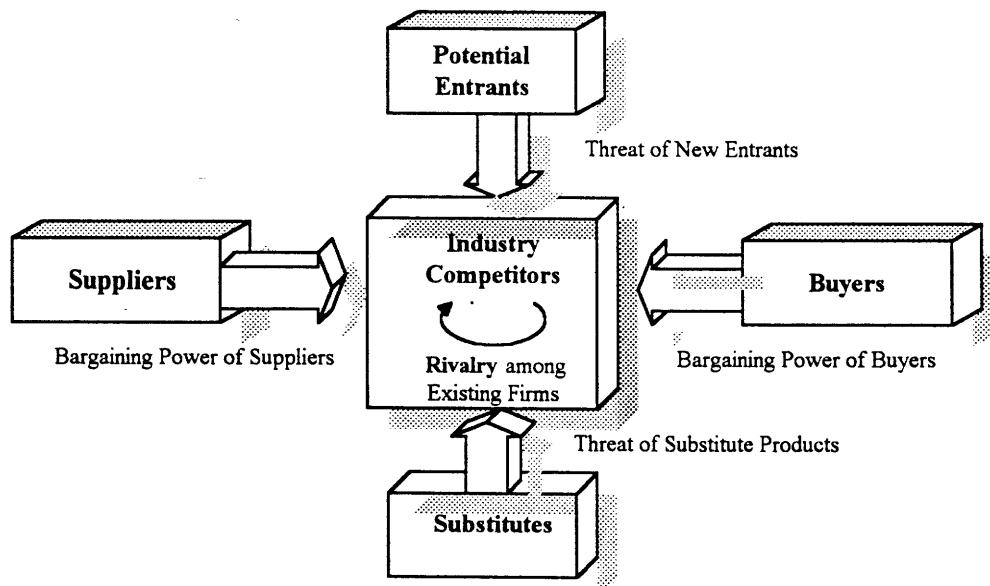


Figure 4-1. The Five Competitive Forces Model

The collective strength of these five competitive forces determines the ultimate profit potential of an industry. The strengths of the five forces varies from industry to industry, even from country to country. They range from intense in industries such as

metal cans, tires, and steel, where no company earns spectacular returns on investment, to mild in industries such as oil field services and equipment, the construction industry, soft drinks, and telephone services, where there is room for quite high returns. These industries in developing countries may show quite different results from those in developed countries. In general, the weaker the forces collectively, the greater the opportunity for superior performance.

The collective strength of these forces may be painfully apparent to all the participants in the industry; but to cope with them, each corporate must delve below the surface and analyze the sources of each force. Knowledge of these underlying sources of competitive pressure provides the groundwork for a strategic agenda of action. These pressure stimulate the positioning of the company in its industry and clarify the areas where strategic changes may yield the greatest payoff. Understanding these sources also proves to be of help in considering areas for diversification.

A few characteristics are critical to the strength of each competitive force. These are discussed in more details in the following paragraphs.

4.1.1. The Threat of New Entrants

The threat of new entrants depends on the barriers to entry that are present, coupled with the reaction from existing competitors that the entrant can expect. If barriers are high or a newcomer can expect sharp retaliation from entrenched competitors, the threat of new entrants as a competitive force is low.

The threat of new entrants within an industry can be influenced by six major sources of barriers.

(1) Economies of scale: these economies deter entry by forcing the aspirant either to come in on a large scale or to accept a cost disadvantage.

(2) Product differentiation: brand identification creates a barrier by forcing entrants to spend heavily to overcome customer loyalty.

(3) Capital requirements: the need to invest large financial resources in order to compete creates a barrier to entry, particularly if the capital is required for unrecoverable expenditures in up-front advertising or R&D.

(4) Cost disadvantages independent of size: entrenched companies may have cost advantages not available to potential rivals, no matter what their size and attainable economies of scale. These advantages can stem from the effects of the learning curve, proprietary technology, access to the best raw materials sources, or favorable locations.

(5) Access to distribution channels: a barrier to entry can be created by the new entrant's need to secure distribution channels for the product have already been served by established firms, the new firm must persuade the channels to accept its product through price breaks, cooperative advertising, allowances, and the like, which reduce profits.

(6) Government policy: the government can limit or even foreclose entry to industries with such controls as license requirements and limits on access to raw materials.

Basically, the threat of new entrants in the construction industry in Taiwan is not particularly potent. For instance, the construction firms in Taiwan need to obtain the licenses from the government to perform construction works; and the licenses are classified into A, B, and C levels which are based on firms' capital, property, experience, and performance records. New entrants must begin their businesses from level C and, after two years, they can apply for upgrading to the next level. In other words, it takes at least four years for new entrants to upgrade to level A. Even though the level of the license is related to the size of the construction work for which the general contractors can bid, by buying existing companies, it is possible for the new entrants to get the level

A license directly. So, compared with other industries like the telephony industry, the threat of new entrants is relatively low.

4.1.2. The Threat of Substitute Products

By placing a ceiling on prices, substitute products or services limit the potential of an industry. Unless it can upgrade the quality of the product or differentiate it somehow, the industry will suffer in earnings and possibly in growth. The more attractive the price-performance alternative offered by substitutes, the firmer the lid placed on industry's potential.

Identifying substitute products is a matter of searching for other products that can perform the same function as the product of the industry. For example, in the building industry, every day brings new and different new building materials that have the same functions as the traditional ones.

Substitute products that deserve the most attention strategically are those that (1) are subject to trends improving their price-performance trade-off with as compared to the industry's traditional product, or (2) are produced by industries earning high profits. Substitutes often come rapidly into play if some development increases competition in their respective industries and causes price reduction or performance improvement.

Since the construction industry is a very traditional industry and the products that the construction firms provide to buyers are so special, the threat of substitute in the industry compared to the manufacturing industry is relatively low.

4.1.3. The Bargaining Power of Suppliers

Suppliers can exert bargaining power on participants in an industry by raising prices or reducing the quality of purchased goods and services. Powerful suppliers can thereby squeeze profitability out of an industry unable to recover cost increases in its

own prices. The power of each important supplier group depends on a number of characteristics of its market situation and on the relative importance of its sales to the industry compared with its overall business.

A supplier group is powerful if: (1) it is dominated by a few companies and is more concentrated than the industry it sells to; (2) it is not obliged to contend with other substitute products for sale to the industry; (3) the industry is not an important customer of the supplier group; (4) the suppliers' product is an important input to the buyer's business; (5) the suppliers' products are differentiated or it has built up switching costs; (6) the supplier group poses a credible threat of forward integration.

In the construction industry, the bargaining power of materials suppliers are variable. It depends not only on what kinds of materials the firms need to buy but also on where the materials suppliers' locations are. Within different regions or countries, there are many different suppliers of many products and services. For example, the cement industry in Taiwan is a monopoly industry; and this results in the strong bargaining power of suppliers.

4.1.4. The Bargaining Power of Buyers

Buyers compete with the industry by forcing down prices, bargaining for higher quality or more services, and playing competitors against each other---all at the expense of industry profitability. The power of each or the industry's important buyer groups depends on a number of characteristics of its market situation and on the relative importance of its purchases from the industry compared with its overall business.

A buyer group is powerful if: (1) it is concentrated or purchases large volumes relative to seller sales; (2) the products it purchases from the industry represent a significant fraction of the buyer's costs or purchases; (3) the products it purchases from the industry are standard or undifferentiated; (4) it faces few switching costs; (5) it earns

low profits; (6) buyers pose a credible threat of backward integration; (7) the industry's product is unimportant to the quality of the buyers' products or services; (8) the buyer has full information.

Most of these sources of buyer power can be attributed to consumers as a group as well as to industrial and commercial buyers; only a modification of the frame of reference is necessary. Consumers tend to be more price sensitive, for instance, if they are purchasing products that are undifferentiated, expensive relative to their incomes, and of a sort where quality is not particularly important.

In the construction industry, the buyers are various and include home buyers, private companies and governments. In other words, the bargaining power of buyers is related to the types of the projects, the quality level that the buyers require, and even the methods of awarding that the buyers choose. Basically, the types of buyers could be grouped into the public and private sector clients. The former category includes central government departments, local authorities, housing associations and various other public corporations. The private sector consists of private households on the one hand and firms and corporations on the other. This latter group is itself diverse, with manufacturing organizations generating a demand for factories and warehouses, and commercial organizations demanding offices and shops. There is an obvious and important distinction to be drawn between the demand for dwellings and that for non-residential work. The buyers in each case are very different and the factors determining their demands are quite separate. A further distinction can be made between those buyers requiring new construction work and those requiring repair and maintenance services.

Moreover, when selling construction services, a company must keep in mind that the buyer's primary business, normally, is not construction. The construction buyer is making a purchase in order to further some organizational objective, such as to make

more money, to reduce operating costs, or to satisfy a social or legal obligation. Companies that buy construction services must adapt to a changing environment. As they do so, what they require from contractors also changes.

Because of the unique bidding basis of the industry and the flexible prices of structures, contractors tend to be most prepared to talk about price. There is no question that price is still an extremely important factor in the selection of a contractor, but it is no longer necessarily the most important factor. The manufacturer of a high-technology item may consider a non-fixed-cost, fast-track approach that results in a production line's being on stream months early to be well worth the possible additional construction cost. A corporate office owner may be most interested in construction methods and materials that will result in lower operating costs and long-term savings.

One example of a company that has changed its construction buying policies to reflect changing needs is IBM. IBM has historically considered price as a primary criterion for contractor selection.¹⁶ Increasing competition and rapidly changing technology in the electronics field have necessitated changes in IBM's construction priorities. One major change is the need for more rapid development of production facilities, caused by the necessity of bringing new products to market faster. IBM is now willing to break ground on a construction project, after selecting a contractor on a fee basis, to begin fast-track construction, with the expectation of increased profits on the sale of a product. A larger share of the market can be captured if customers are reached sooner. The emphasis on reduced schedules has caused a change in contracting strategies. During the early 1980's, IBM contracting policy broadened from almost exclusively lump-sum contracts to also include design/build, phased, cost plus fixed fee, guaranteed maximum-share in the savings, prepurchase, or some combination of all these.

¹⁶Adapted from Arnold P. Richter, "IBM's Needs in the 1980's," *Speech given at the 1983 ENR/Tecton Media Construction Marketing for the Eighties Seminar*, July 1983.

High-technology item programs have resulted in the need for special construction expertise to handle a variety of construction problems. IBM needs contractors familiar with special construction methods relating to clean rooms, interstitial space, chemical handling, waste treatment, process control, and automatic storage. IBM is interested in the construction of energy-efficient facilities and wants to deal with construction professionals who are knowledgeable about materials selection and energy management systems.

However, the bargaining power of buyers sometimes is strong. If projects are awarded by lump-sum competitive bidding, general contractors have to cut down their prices to get the jobs. On the other hand, the bargaining power of buyers sometimes is weak. Since the buyers ask for high quality level and award the projects by single-source negotiation, the general contractors get the opportunity to bargain for higher prices.

4.1.5. Rivalry among Existing Firms

Rivalry among existing competitors takes the familiar form of jockeying for position---using tactics like price competition, product introduction, and advertising slugfests. Rivalry occurs because one or more competitors either feels the pressure or sees the opportunity to improve position. In most industries, competitive moves by one firm have noticeable effects on its competitors and thus may incite retaliation or efforts to counter the move.

Intensive rivalry is related to the presence of a number of factors: (1) competitors are numerous or are roughly equal in size and power; (2) industry growth is slow, precipitating fights for market share that involve expansion-minded members; (3) the product or service lacks differentiation or switching costs, which lock in buyers and protect one combatant from raids on its customers by another; (4) fixed costs are high or the product is perishable, creating strong temptation to cut prices; (5) capacity is

normally augmented in large increments; (6) exit barriers are high; (7) the rivals are diverse in strategies, origins, and personalities.

Generally speaking, in the construction industry, the rivalry among existing firms is strong. Especially, if the firms have undifferentiated products and services, a large number of similarly sized companies will become competitors. In order to reduce the rivalry among existing firms, some construction companies will focus on specific marketplaces and try to differentiate their products. For example, some Japanese construction firms focus on the large projects and high-technology end of the construction sectors; and spend lots of money in computing and engineering technology.

4.1.6. The Application of the Five Competitive Forces Model

The five competitive forces model can be used to compare relative potential for superior business performance between different industries and industry segments. But when companies apply this model, they must understand that even in the same industry, different regions, countries, or government regulations can cause very different results in the analysis. The following analysis for the construction industry is based on the pre-qualification open bidding system used for the public projects in some Asian countries such as Japan and Taiwan; and the numbers from zero to five is represented the strength of significance of each factor. For example, if the number is five, this means the factor is one of the most significant issues.

From the analysis table shown as Figure 4-2, we know the most significant force in the five competitive forces model is *the bargaining power of buyers*. In public sector projects, the buyers are national or local governments. In order to keep high quality of the projects, governments have to choose the contractors very carefully.

Competitive Force	Strength	Competitive Force	Strength
Threat of New Entrants		Rivalry Among Existing Firms	
Economy of scale	2	Industry growth	4
Proprietary product differences	3	Fixed cost/value added	4
Brand identity	3	Intermittent over capacity	3
Switching costs	4	Product differences	3
Capital requirements	2	Brand identity	3
Access to distribution	4	Switching costs	4
Proprietary learning curve	3	Concentration and balance	4
Access to inputs	4	Informational complexity	4
Proprietary product design	5	Diversity of competitors	3
Government policy	3	Corporate stakes	4
Expected retaliation	4	Exit barriers	2
Bargaining Power of Supplier		Bargaining Power of Buyer	4
Differentiation of inputs	3	Buyer concentration	5
Switching Costs of Suppliers	2	Buyer volume	5
Presence of substitute products	2	Buyer switching costs relative to firm switching cost	5
Importance of volume to suppliers	3	Buyer information	1
Cost relative to total purchases	2	Ability to backward integrate	1
Impacts of inputs on cost or differentiation	3	Substitute products	1
Threat of forward integration	3	Price/total purchase	4
	2	Product differences	4
Threat of Substitutes		Brand identity	4
Relative price performance of substitutes	0	Impact on quality/performance	4
Switching costs	0	Buyer profit	3
Buyer propensity to substitutes	0	Decision makers incentives	4

Figure 4-2. The Analysis of Each Competitive Force in the Construction Industry¹⁷

¹⁷The analysis is based on the pre-qualification bidding system.

As a result, the factors in the bargaining power of the buyers, such as the buyer concentration, the buyer volume, the buyer information, and the decision makers incentives, show high strength. Besides, under the pre qualification open bidding system, the strength of the threat of new entrants and the intensity of rivalry has been reduced. Since the governments set up the high standards of pre-qualification, the numbers of the construction firms which can attend bidding will be cut down.

4.2. THE VALUE CHAIN¹⁸

The value chain is the tool that can diagnose competitive advantage and find ways to create and sustain it. The value chain disaggregates a firm into its strategically relevant activities; and each of these activities can contribute to the firm's relative cost position and create a basis for differentiation. By performing these important activities, the firm can gain competitive advantage more cheaply or better than its competitors.

When a firm wants to understand the behavior of costs and the existing and potential sources of differentiation, the value chain can help the firm to analyze the sources of competitive advantage by examining all the activities the firm performs and how they interact.

The value chain displays total value, and consists of value activities and margin. Value activities are the physically and technologically distinct activities a firm performs. From this point of view, we can say every firm is a collection of activities that are performed to design, produce, market, deliver, and support its product. All these activities can be represented by using the value chain. The margin is the difference between total value and the collective cost of performing these value activities (See Figure 4-3).

¹⁸Originally derived from Michael E. Porter, *Competitive Strategy*, The Free Press, 1980.

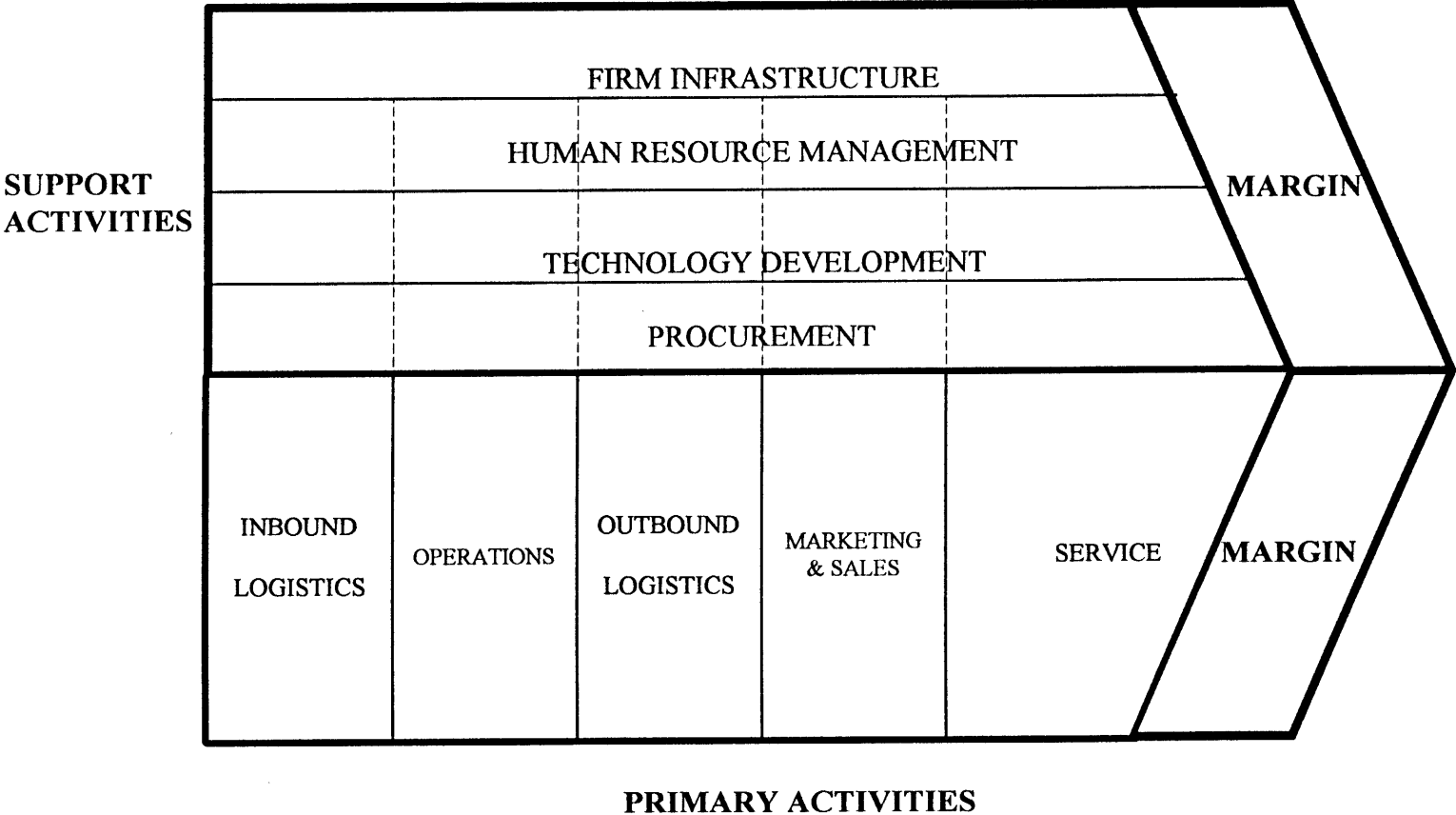


Figure 4-3. The Value Chain

Moreover, a firm's value chain is embedded in a larger stream of activities value chains. Thus, from these value chains, we also can get another idea---the value system, which can show a firm its upstream and downstream industries (See Figure 4-4).

In addition, the value system can provide a firm the related information that shows the possibilities of the firm's integration and diversification. Figure 4-5 shows the basic value system of the construction industry.

All value activities are directly influenced by the integration and the diversification of companies in the value system. Basically, they can be divided into two broad types: primary activities and support activities.

4.2.1. The Primary Activities

The primary activities are the activities involved in the physical creation of the product and its sale and transfer to the buyer as well as after-sale assistance.

There are five generic categories of primary activities involved in competing in any industry, as shown as Figure 4-3. Each category may be vital to competitive advantage and can be divisible into a number of distinct activities that depend on the particular industry and firm strategy. The five generic categories of the primary activities are shown as followed.

(1) Inbound logistics: activities associated with receiving, storing, and disseminating inputs to the product, such as material handling, warehousing, inventory control, vehicle scheduling, and returns to suppliers. In the construction industry, for most general contractors, early feasibility studies, estimating quantities of construction materials, and more details of project planning are included in their inbound logistics.

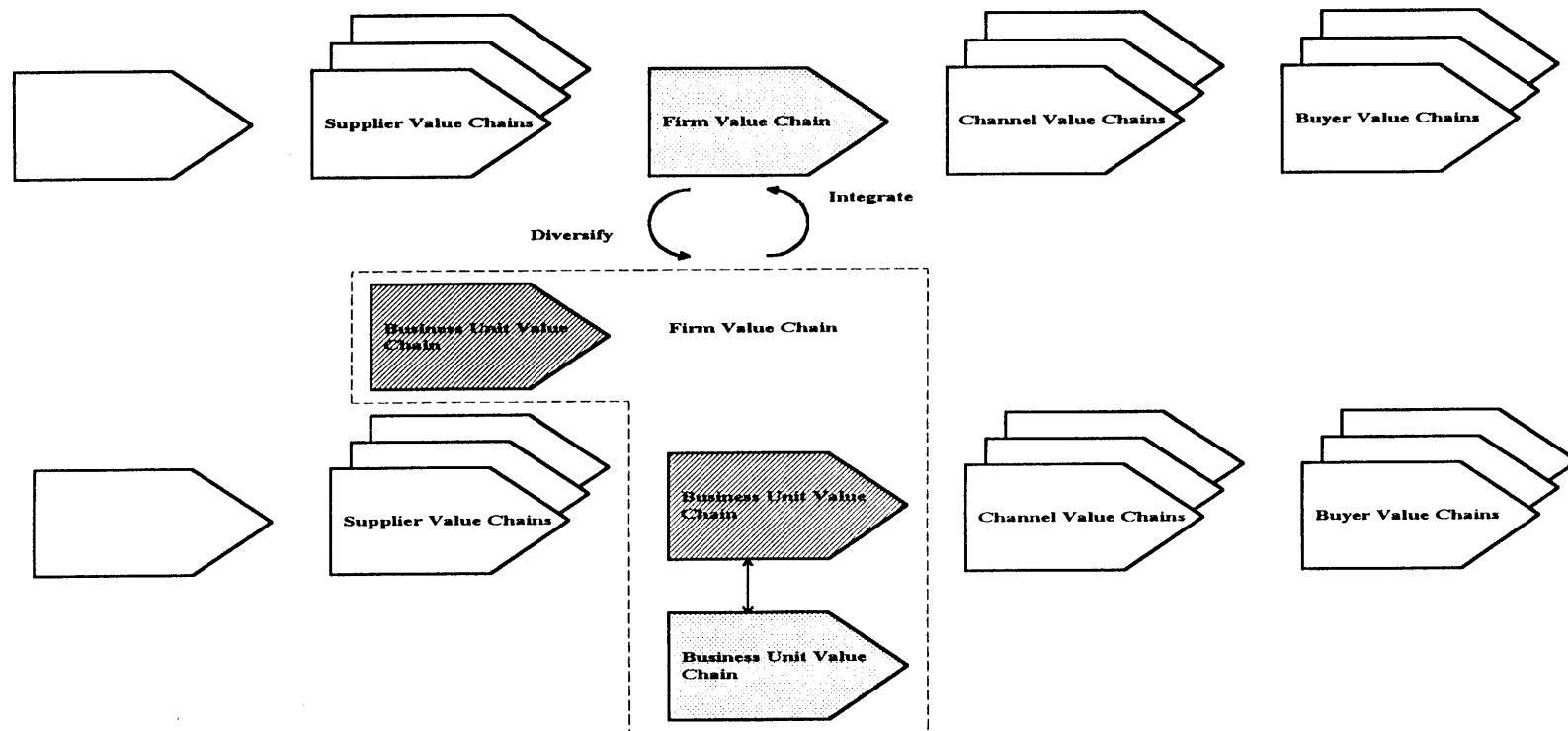


Figure 4-4. The Value System

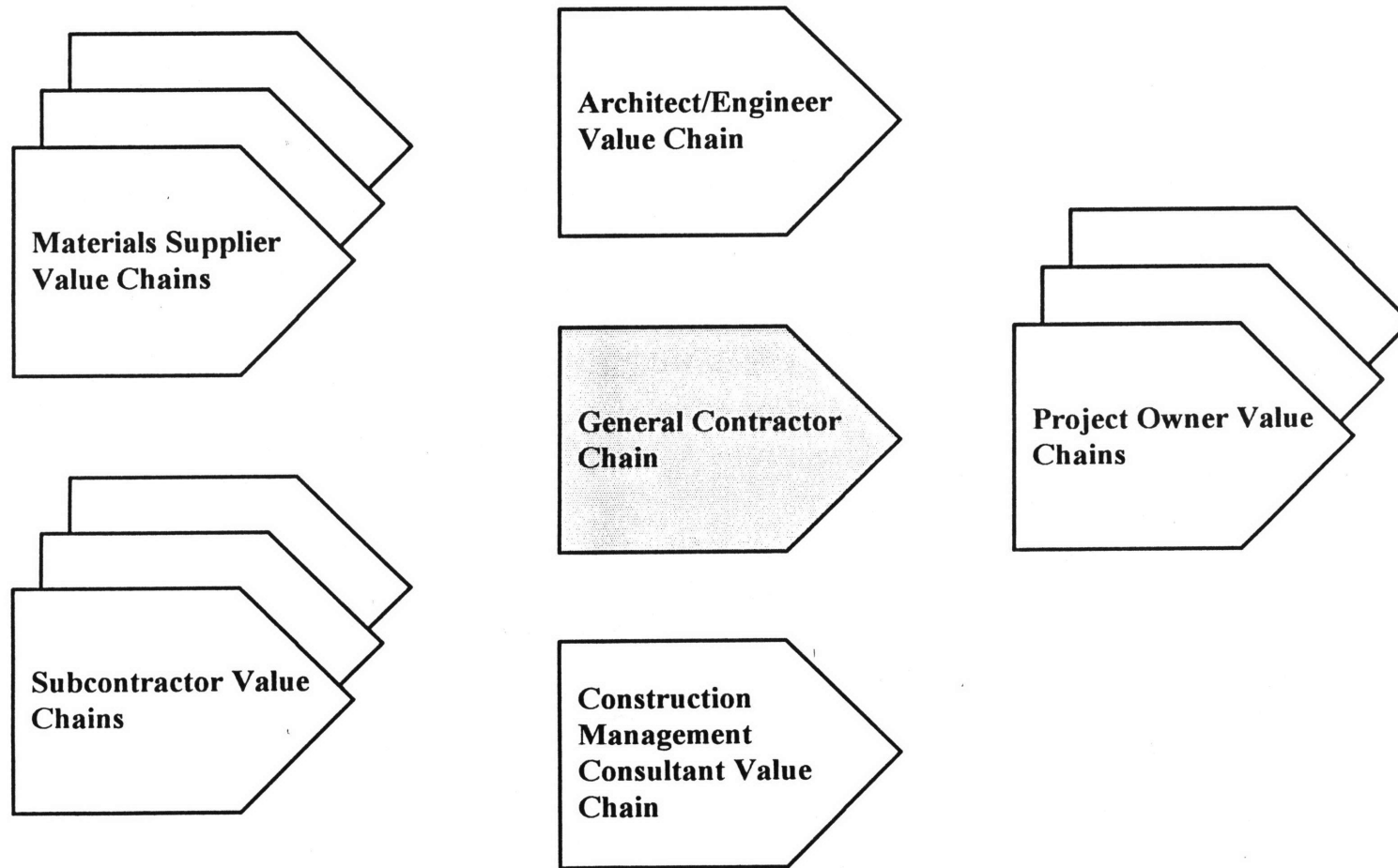


Figure 4-5. The Typical Value System of the Construction Industry

(2) Operations: activities associated with transforming inputs into the final product form, such as machining, packaging, assembly, equipment maintenance, testing, printing, and facility operations. For the general contractors, the construction management and the general construction work can be their operation regions.

(3) Outbound logistics: activities associated with collecting, storing, and physically distributing the product to buyers, such as finished goods warehousing, material handling, delivery vehicle operation, order processing, and scheduling. In the construction industry, for the materials suppliers and some specific general contractors like nuclear factory contractors, their main activities are similar to the preceding description. But, for most general contractors, they are hired to build a building or structure by the owners. They just have to go to the work sites where the owners select to build their projects. Even though general contractors don't need to distribute their products to the buyers in the same way as manufacturing firms do, some other activities could be included in their outbound logistics, such as recording data related to all finished projects. Because construction buyers of all types want contractors with experience on similar projects, by keeping all related information on finished projects, the contractors will have more opportunities to get their next jobs.

(4) Marketing and sales: activities associated with providing a means by which buyers can purchase the product and inducing them to do so, such as advertising, promotion, sales force, quoting, channel selection, channel relations, and pricing. In the construction industry, marketing and sales are very important. The activities in this section could be very different, because different marketing focuses are decided by several reasons, such as type of the project, geographical location of the project, and type of the service. Basically, bidding, analyzing marketing information, and establishing relationships with clients are the main activities in marketing and sales section.

(5) Service: activities associated with providing service to enhance or maintain the value of the product, such as installation, repair, training, parts supply, and product adjustment. The main activity for the construction industry is the maintenance of the projects during the period of guarantee.

4.2.2. The Support Activities

The support activities involved in competing in any industry can be divided into four generic categories: (1) procurement; (2) technology development; (3) human resource management; and (4) firm infrastructure. The support activities support the primary activities and each other by providing purchased inputs, technology, human resources, and various firmwide functions. The dotted line shown in Figure 4-3 reflect the fact that procurement, technology development, and human resource management can be associated with specific primary activities as well as support the entire chain. Firm infrastructure is not associated with particular primary activities but supports the entire chain. The four generic categories of the support activities are shown as followed.

(1) Procurement: This refers to the function of purchasing inputs used in the firm's value chain, not to the purchased inputs themselves. Purchased inputs include raw materials, supplies, and other consumable items as well as assets such as machinery, computers, laboratory equipment, office equipment, uniforms, or operation buildings. In the construction industry, the items of procurement of the companies are directly related to their marketing strategies. In other words, the types of the projects which are the companies' focusing markets and the technology applied to these projects are the key points for decisions of purchasing what kinds of construction machinery and other assisting equipment.

(2) Technology development: This consists of a range of activities that can be broadly grouped into efforts to improve the product and the process. The array of

technologies employed in most firms is very broad, ranging from those technologies used in preparing documents and transporting goods to those technologies embodied in the product itself. In the past ten years, technology development in the construction industry has been improved. But comparing with the manufacturing industry and the computer industry, the speed of development is very slow. Three areas of technological advancement include the application of CAD systems, the improvement of information systems, and the automation of construction work. Basically, the activities in these areas depend on companies' strategic markets and the investment of R&D.

(3) Human resource management: This consists of activities involved in the recruiting, hiring, training, development, and compensation of all types of personnel. Like procurement and technology development, human resource management supports both individual primary and support activities and the entire value chain. In the construction industry, marketing, financing, estimating and contracting are the main issues for most companies. Hence, the activities in the human resource management are focused on the employees who have expertise in these four areas.

(4) Firm infrastructure: This consists of a number of activities including general management, planning, finance, accounting, legal, government affairs, and quality management. Firm infrastructure not only supports individual activities but the entire chain. In the construction industry, the activities in the firm infrastructure are the overall executive actions, such as setting up firms' missions and carrying through total quality management (TQM.)

All value activities either in the value chain model or the value system can also be classified into three activity types that play a different role in competitive advantage. All three types are present not only among primary activities but also among support activities. It is very important for a firm to make the distinction among the three activity types, since such a distinction can help a firm diagnose its competitive advantage. The

three activity types are: (1) Direct activity--- which involves creating value for the buyer, such as assembly, parts machining, sales force operation, advertising, product design, recruiting, and so on. (2) Indirect activity--- which continuously performs direct activities on a normal basis, such as maintenance, scheduling, operation of facilities, sales force administration, research administration, and so on. (3) Quality assurance---which ensures the quality of other activities, such as monitoring, inspecting, testing, reviewing, checking, adjusting, and reworking.

However, by approaching the value activities through different point of views, the companies can identify their activities more effectively and efficiently.

4.2.3. The Application of the Value Chain Model

In order to diagnose competitive advantage, it is necessary to define a firm's value chain for competing in a particular industry. Starting with the generic chain, individual value activities are identified in the particular firm. Each generic category can be divided into discrete activities, as illustrated for one generic category in Figure 4-6.

The emphases on the value activities might be different; hence, the appearance of the value chain could be modified. It depends on the type of industries and the features of a company. For many construction companies, the marketing and sales section, recently, probably has become the most important primary activity. Therefore, this section has been adjusted and moved to *the first part* of primary activities in the value chain. For instance, because of the finite size of local market and limited sources of construction materials and in order to pursue the growth of companies, many big construction firms have been beginning to exploit international construction markets. They have invested lots of money to strengthen marketing functions.

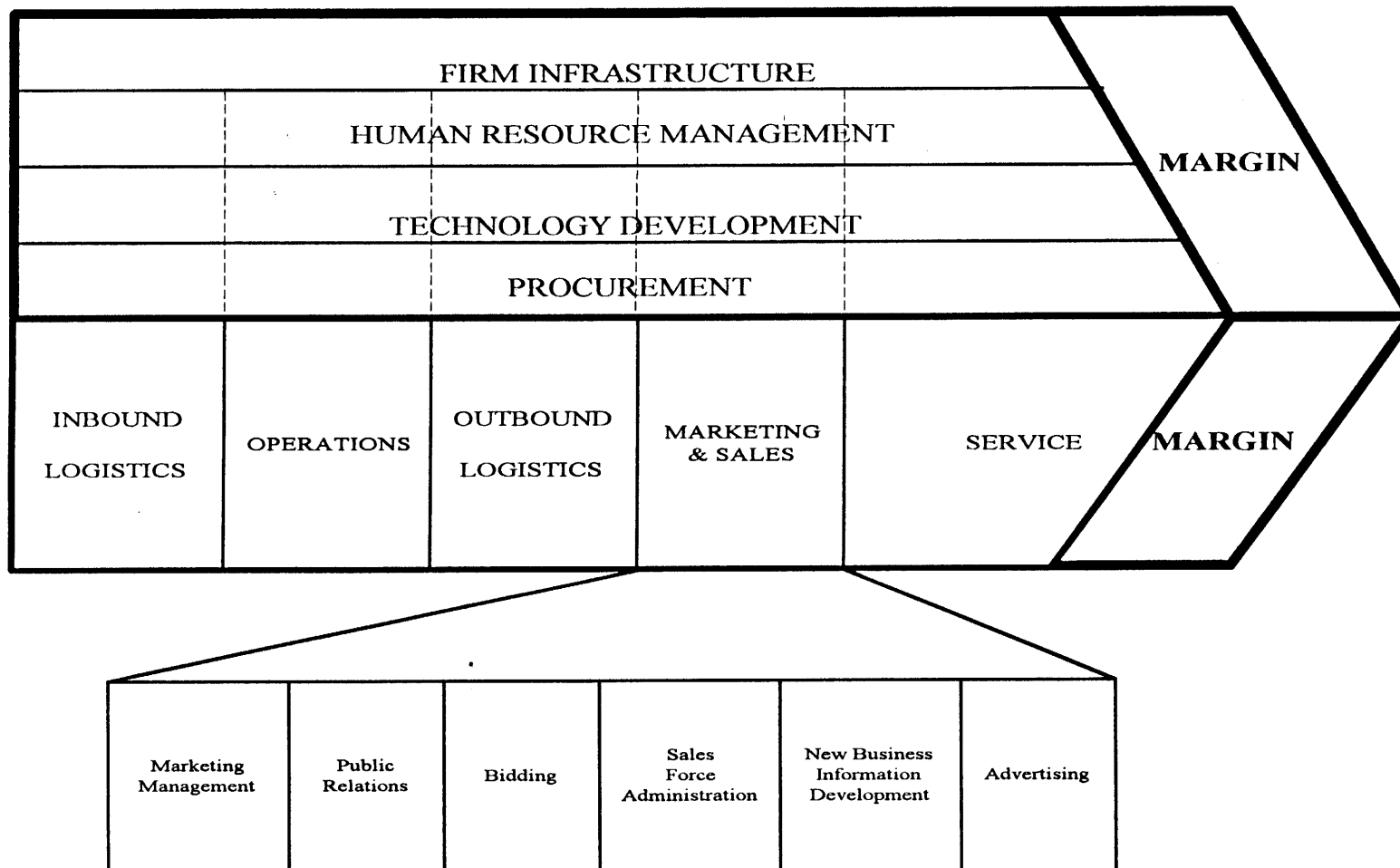


Figure 4-6. Subdividing a Value Chain

For small or medium size construction firms, because of their limited capabilities in financing and contracting, their marketing functions are weaker than big firms, especially, in the international construction markets. Thus, these small or medium size firms focus their marketing functions on local markets more than international markets. An example of a complete value chain is shown in Figure 4-7, the value chain of a construction firm.

4.3. THE SWOT ANALYSIS¹⁹

The SWOT analysis is the tool that a company can use it for showing the firm's *strengths, weaknesses, opportunities, and threats* by scanning its internal activities and external environment. When a company wants to examine its intended mission and decide whether the firm should revise its original mission or not, the SWOT analysis can be applied to offer a brief overview of the firm's performance in the industry and present relative information.

The SWOT analysis allows management to see quickly and clearly where its strengths lie and how important these strengths are. It helps the company to determine whether its current resources are being used in the best possible way and whether its intended mission is sufficient to achieve the greatest return on investment. It also reveals gaps between planned targets and projected performance.

Unlike the value chain model which gets into the details of a firm's activities, the SWOT analysis provides a company with a broad survey of its overall performance in four basic areas: *marketing, financing, producing, and organizational strengths*. Each area includes several factors which can be used for evaluating a firm's strengths and weakness.

¹⁹Sources from Kenneth R. Andrews, *The Concept of Corporate Strategy*, Richard D. Irwin, Inc., 1980; and Alan J. Rowe, Richard O. Mason, and Karl E. Dickel, *Strategic Management and Business Policy: A Methodological Approach*, Addison-Wesley Publishing Co., 1982.

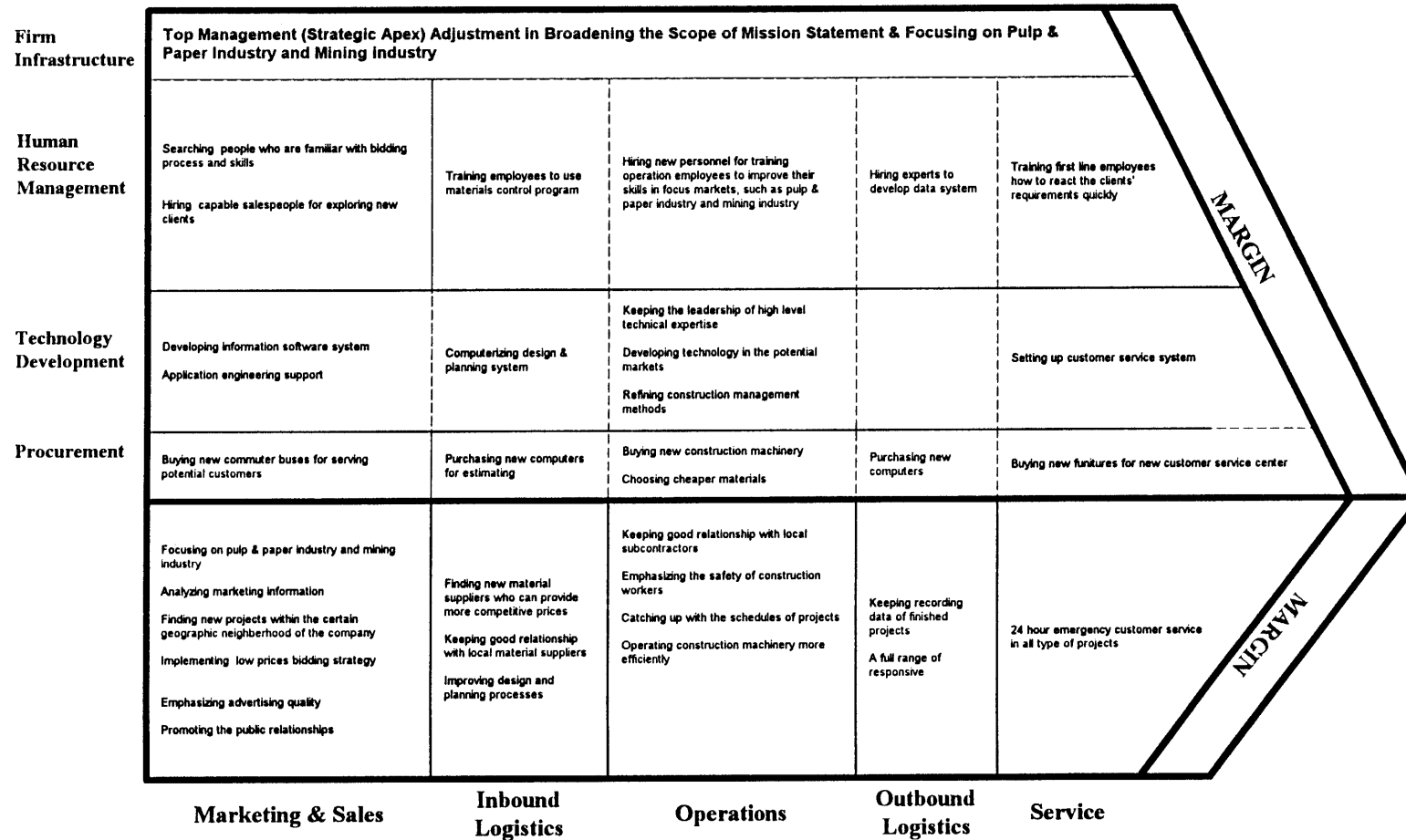


Figure 4-7. The Value Chain of a Construction Firm

For example, a firm may include reputation, costs, marketing share, location and R & D, *in the marketing area*; financial availability, profitability and stability, *in the financing area*; facilities, capacity, and technology, *in the producing area*; and leadership, human resource management, and response to changing condition, *in the organizational area* (See Figure 4-8). This depiction of the company's capabilities in dealing with both the internal and the external environment makes it possible to examine relative strengths and weaknesses, determine gaps in performance, and see where opportunities exist for further utilizing current resources.

The SWOT analysis should be conducted in four steps as follow: (1) *Collect a set of key facts about the organization and its environment*. This data base will include facts about the organization's markets, competition, financial resources, products, facilities, employees, inventories, marketing and sales system, equipment, management, history, reputation, and environmental setting, such as technological, political, social, and economic trends; (2) then, *evaluate each fact to determine whether it constitutes an opportunity, threat, strength, or weakness for the organization*; (3) next, *record the evaluation in the SWOT analysis form*; (4) finally, *according to the different strength and weakness levels in the preceding result, identify opportunities and threats*.

A clearly defined mission, specialized enough to distinguish the firm from other competitors in the marketplace, is essential to adapt successfully to the rapid changes of a highly uncertain and highly competitive marketplace. Several of the market forces that have created this situation include: changes in technology; shifting national priorities; aggressive domestic and international competition; and more complex client needs. A firm's response to the *opportunities* and *threats* created by these external market forces must be rapid and confident. Therefore, for the construction companies, it has become more important than ever to clearly understand the firms' *strengths* and *weaknesses*.

	Performance					Importance		
Strength to Weakness	+2	+1	0	-1	-2	Hi	Med	Low
Marketing Strengths								
Company is well-known & highly regarded								
Company has a strong relative market share								
Good reputation for quality								
Good reputation for service								
Low labor costs								
Low distribution costs								
Effective R&D and innovation								
Effective sales force								
Geographical advantage								
Raw material advantage								
Producing Strengths								
New, well-equipped facilities								
Strong economies of scale								
Capacity to meet demand								
Ability to deliver on time								
Ability and dedicated workforce								
Technical skill								

Figure 4-8. The SWOT Analysis²⁰

²⁰Sources from Kenneth R. Andrews, *The Concept of Corporate Strategy*, Richard D. Irwin, Inc., 1980; and Alan J. Rowe, Richard O. Mason, and Karl E. Dickel, *Strategic Management and Business Policy: A Methodological Approach*, Addison-Wesley Publishing Co., 1982.

	Performance					Importance		
Strength to Weakness	+2	+1	0	-1	-2	Hi	Med	Low
Financial Strengths								
Low cost of capital								
High availability								
High profitability								
Financial stability								
Organizational Strengths								
Enlightened, visionary leadership								
Capable managers								
Dedicated workers								
Entrepreneurial orientation								
Speedy response to changing conditions								
Flexible and adaptable								

Figure 4-8. The SWOT Analysis (Continued)

The assessment of strengths and weaknesses associated with the attainment of specific objectives becomes a key link in a feedback loop which allows managers to learn from the success or failures of the policies they institute.

Additionally, the distinctive competence of an organization is more than what it can do; it is what it can do particularly well. To identify the less obvious or by-product strengths of an organization that may well be transferable to some more profitable new opportunities, one might well begin by examining the organization's current product line

and by defining the functions it serves in its markets. Almost any important product has functions which are related to others which a qualified company might move into.

Basically, both the opportunity analysis and the threat analysis should focus on the trends which are affecting the firm's business now or might affect it in the future. In the construction industry, some of the following trends could be a company's opportunities, such as a joint venture on a large project, a new construction management division, acquisition of or by another firm, a build-operate-transfer (BOT) project, a drop in interest rates, international work, new types of work done in-house, new services, well financial arrangements, and positive political change. Others could be a company's threats, such as new competition, lawsuits, loss of an important client, energy rationing, program changes, bad financial arrangements, and negative political change.

A construction company, for example, started its business in the commercial building market. Recently, the company has found that demand in the public housing market is increasing. Since these products are similar to each other, the company decides to exploit the new market. In the meanwhile, the company also finds out it is good at managing projects. Certainly, this has brought the company another new business opportunity---construction management services. In the preceding case, if the company found a threat from a decreasing commercial building market, in order to survive it must find a new opportunity---another potential market, such as the residential building market.

The way to narrow the range of alternatives, made extensive by imaginative identification of new possibilities, is to match opportunity to competence, once each has been accurately identified and its future significance estimated. It is this combination which establishes a company's economic mission and its position in its environment. The combination is designed to minimize organizational weakness and to maximize strength. Every organization has actual and potential strengths and weaknesses. Since it is

prudent in formulating strategy to extend or maximize the one and contain or minimize the other, it is important to try to determine what they are and to distinguish one from the other. By viewing the SWOT analysis form, step by step, a company can know what its strengths and weaknesses are, and find what its opportunities and threats are.

In the construction industry, for example, a construction company sets up its original mission--- to provide professional engineering and general contracting services to private sector clients in the commercial building market. A few years later, the firm has failed in finding new private sector clients from the commercial building market but it has explored a lot of potential public sector clients who are responsible for public housing, environment resources, environmental facilities, and environmental infrastructure.

After evaluating its performance in the industry, the firm knows that the threats it is facing are the facts that its construction market is changing, its market share is decreasing, and the profitability of the commercial buildings is low; the firm's weaknesses are that the response to changing conditions is slow, the performance of R & D is bad, the sales force isn't strong enough, and technical skill is poor; On the other hand, the firm's strengths are its good reputation, low labor costs, high financial stability, and capable managers; the firm's opportunities are based on its good service, geographical advantage, raw material advantage, high financial availability, and its flexible organizational structure. All these factors bring the company new opportunities to provide construction management service and get into the residential buildings and environment engineering markets (See Figure 4-9).

From the result of the SWOT analysis, the company decides to revise its original mission to a new version---to provide public sector clients specialized professional engineering and construction management services in the residential building and the environment engineering fields.

	Performance					Importance		
Strength to Weakness	+2	+1	0	-1	-2	Hi	Med	Low
Marketing Strengths								
Company is well-known & highly regarded	♦					♣		
Company has a strong relative market share					♦	♣		
Good reputation for quality		♦					♣	
Good reputation for service	♦					♣		
Low labor costs		♦				♣		
Low distribution costs			♦					♣
Effective R&D and innovation				♦			♣	
Effective sales force				♦		♣		
Geographical advantage		♦					♣	
Raw material advantage		♦					♣	
Financial Strengths								
Low cost of capital		♦					♣	
High availability	♦					♣		
High profitability				♦				♣
Financial stability		♦					♣	

Figure 4-9. The SWOT Analysis

	Performance					Importance		
Strength to Weakness	+2	+1	0	-1	-2	Hi	Med	Low
Producing Strengths								
New, well-equipped facilities		♦					♣	
Strong economies of scale				♦				♣
Capacity to meet demand		♦				♣		
Ability to deliver on time		♦				♣		
Ability and dedicated workforce		♦					♣	
Technical skill				♦			♣	
Organizational Strengths								
Enlightened, visionary leadership		♦					♣	
Capable managers	♦					♣		
Dedicated workers		♦					♣	
Entrepreneurial orientation		♦					♣	
Flexible and adaptable	♦						♣	
Speedy response to changing conditions			♦			♣		

Figure 4-9. The SWOT Analysis (Continued)

4.4. THE SEGMENTATION MATRIX²¹

The segmentation matrix is a tool that can show where in the industry a firm should compete, in what segments focused strategies will be sustainable, and how its strategy should reflect this segmentation. The reason that an industry has to be segmented (or a firm has to draw industry boundaries) for competitive strategy formulation is that the products, buyers, or both within an industry are dissimilar in ways that affect their intrinsic attractiveness or the way in which a firm gains competitive advantage in supplying them. So, in other words, the segmentation matrix is a tool that can be used to draw industry boundaries and probe for narrower industry definitions by exposing structural heterogeneity within an industry.

In the construction industry, the construction market is exceptionally fragmented along several lines: categories of project types, such as residential and non-residential buildings; types of owner, such as private and public sectors; project geographical locations, such as Africa, America, Asia, and so on.

When a firm wants to identify and isolate its various services and the needs of its clients, the segmentation matrix can show the firm which of the segments are being addressed by the firm and which ones have the most profit potential.

An industry is a market in which similar or closely related products are sold to buyers. Differences in requirement for competitive advantage among an industry's products and buyers create industry segments. Therefore, we can take an industry as an array of products and buyers. In the segmentation matrix, the horizontal axis---buyer type refers to who are buyers; and the vertical axis---product variety refers to what products a firm can offer(See Figure 4-10).

²¹Originally derived from Michael E. Porter, *Competitive Advantage*, The Free Press, 1985.

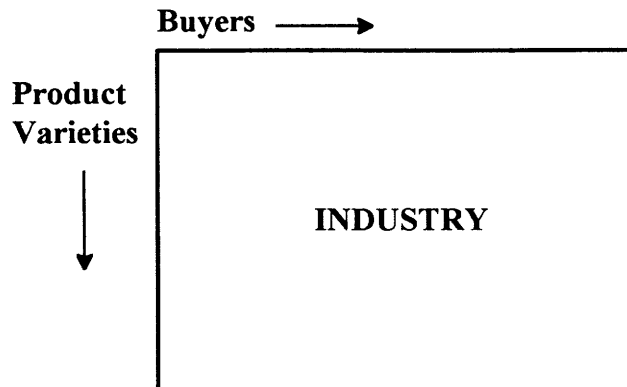


Figure 4-10. An Industry as an Array of Product and Buyers²²

In the first section of this chapter: The Five Competitive Forces Model, we mentioned how these forces determine overall industry attractiveness. Hence, the five competitive forces analysis can also be applied to industry segments (See Figure 4-11).

In addition, a firm also can use the segmentation matrix to test its understanding of interrelationships among segments by showing competitors on the segmentation matrix. For example, in Figure 4-12, the firms A, B, C, and D are competitors. If all of them focus on the center block area in the segmentation matrix, it means this block is the most competitive marketplace. The figure immediately shows the intensity of competition by plotting segments in different ways. For example, the cell in the middle of the matrix, which is the market wanted by all the firms: A, B, C, and D, is obviously the most competitive marketplace.

²²Originally derived from Michael E. Porter, *Competitive Advantage*, The Free Press, 1985.

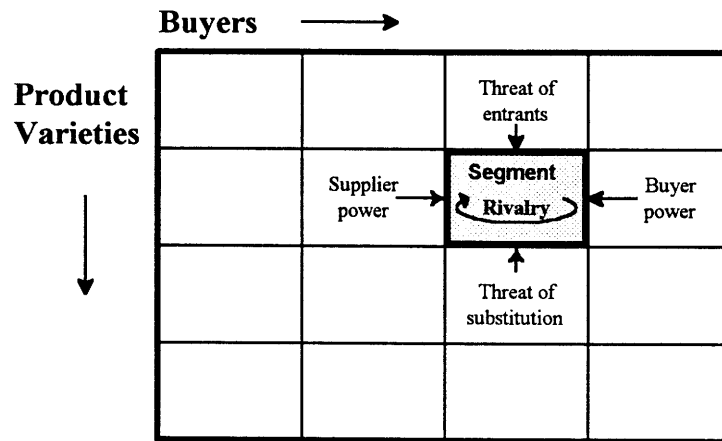


Figure 4-11. Differences in the Five Competitive Forces among Segments²³

BUYERS		
PRODUCTS	A, B, C	B, D
		A, B, C, D
	C	A, C, D

Figure 4-12. Competitive Positions among Firms: A, B, C, D in the Industry²⁴

²³Originally derived from Michael E. Porter, *Competitive Advantage*, The Free Press, 1985.

²⁴Originally derived from Michael E. Porter, *Competitive Advantage*, The Free Press, 1985.

There is no single best means of segmenting the buyer type and the product variety. However, in order to avoid overlook any possibilities, it is best to start with a long list of segmentation variables. Then, these variables can be combined or eliminated in order to refine the segmentation matrix. In other words, the whole process of segmenting the matrix usually involves trying a number of different segmentation schemes in which the buyer and product differences that are the most important for industry structure are gradually exposed. This basic industry segmentation process is shown in Figure 4-13.

In general, whether the emphasis is on buyers or products, both segmentations should reflect the underlying structural and value chain differences among buyers or products rather than any single classification scheme, since the goal of segmentation is to expose all these differences. Hence, when a company deals with more than two segmentation variables, it is usually useful to create combined segmentation matrices to help the company figure out its final target markets. A construction company in Asia is chosen to explain how to apply the segmentation matrix to the construction industry. The process is illustrated in Figure 4-14. The final result of the analyses of the segmentation matrix is shown as Figure 4-15.

Additionally, when a company applies this analytical tool, it also can depend on its own needs to show different related information in the same segmentation matrix. For instance, Figure 4-16 shows for the example construction firm, comparisons among its expertise market, strategic market, and growth market. The shadow parts of this segmentation matrix shows the its best choice of the markets in the future.

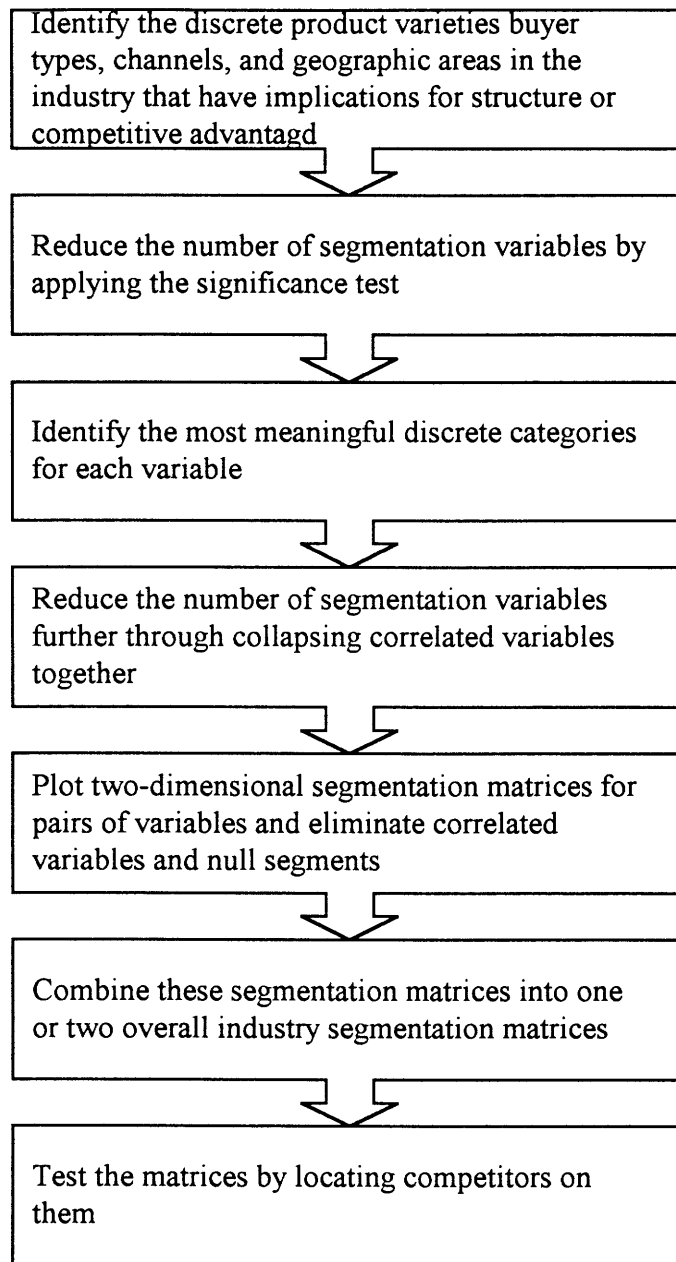


Figure 4-13. The Basic Industry Segmentation Process²⁵

²⁵Originally derived from Michael E. Porter, *Competitive Advantage*, The Free Press, 1985.

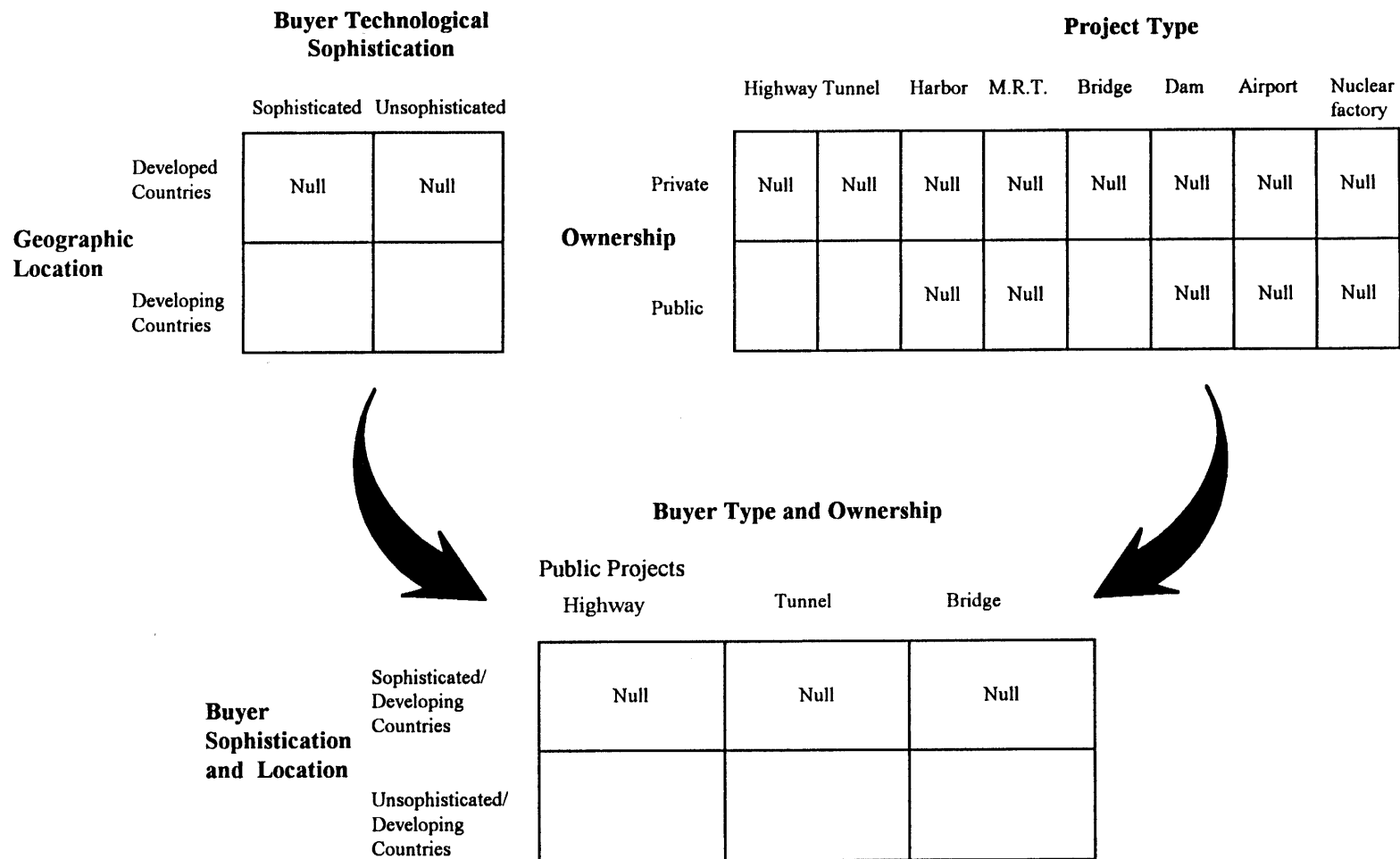


Figure 4-14. Combined Segmentation Matrix for a Construction Firm in Asia

		BUYER		
		Public Projects:		
		Highway	Tunnel	Bridge
PRODUCT VARIETY	General Construction Services			
	Construction Management			

Figure 4-15. The Segmentation Matrix of a Construction Firm in Asia

A: expertise market

B: strategic market

C: growing market

Project Types (Buyers) Product Varieties	High- ways	Tunnels	Bridges	M.R.T.	Sub- ways	Nuclear factory	Dams	Air- ports
General Construction Services	A, B, C	A, B, C	A, B, C	B, C	B, C	C	C	C
Construction Management	A, B, C	A, B, C	A, B, C	B, C	B, C	C	C	C

Figure 4-16. The Comparative Segmentation Matrix of a Construction Firm in Asia

4.5. THE THREE GENERIC COMPETITIVE STRATEGIES²⁶

The three generic competitive strategies concept is a tool that can constitute strategies to distinguish the core business. A firm can possess one of two basic types of competitive advantage: low cost or differentiation. These combine with the scope of a firm's operations to produce the three generic competitive strategies for achieving above-average performance in an industry. The overall cost leadership strategy, the differentiation strategy, and the focus strategy are these three.

When a firm wants to take offensive or defensive actions to create a defensible position in the long run, the three generic strategies can be used singly or in combination to help the firm to do better than other firms in an industry. This simple two-by-two matrix is effective in describing how the firm competes. *The horizontal axis* refers to how a company intends to compete. For example, a company can compete either by providing lower costs than anybody else or by providing more quality and service. *The vertical axis* refers to competitive scope. Within the context of competition based on cost or differentiation, a company can target a broad range of clients, others might focus on a specialty market (See Figure 4-17).

In addition, the three generic strategies are directly or indirectly related to other analyses of strategic planning. For instance, the importance index in the SWOT analysis can be changed. In Figure 4-9, if the company choose the differentiation strategy, the importance indexes of the reputation for quality and service will be high.

In the construction industry, the awarding methods which are chosen by the owners directly influence the firms' three generic strategies. For example, in the open bidding system, construction firms probably should pay attention to their overall cost leadership strategy; in the nominated bidding system, firms must emphasize their quality and services---the differentiation strategy; in the pre-qualification bidding system, the

²⁶Originally derived from Michael E. Porter, *Competitive Strategy*, The Free Press, 1980.

firms had better focus on specific markets and achieve their targets in both lower costs and higher differentiation. More details about the three generic strategies are described as followed.

Competitive Advantage		Lower Cost	Differentiation in Quality and Service
Competitive Scope			
Broad Market	Target	<i>(1) Cost Leadership</i>	<i>(2) Differentiation</i>
Narrow Market	Target	<i>(3.1) Cost Focus</i>	<i>(3.2) Differentiation Focus</i>

Figure 4-17. The Three Generic Competitive Strategies²⁷

4.5.1. The Overall Cost Leadership Strategy

Overall cost leadership requires aggressive construction of efficient-scale facilities, vigorous pursuit of cost reductions from experience, tight cost and overhead control, avoidance of marginal customer accounts, cost minimization in areas like R&D, service, sales force, advertising, and so on.

²⁷Originally derived from Michael E. Porter, *Competitive Strategy*, The Free Press, 1980.

Quality, service, and other areas are important to a company, but low cost relative to competitors is the theme running through the entire strategy. Having a low-cost position yields the firm above-average returns in its industry despite the presence of strong competitive forces. A low-cost position protects the firm against all five competitive forces because bargaining can only continue to erode profits until those of the next most efficient competitor are eliminated, and because the less efficient competitors will suffer first in the face of competitive pressures. For example, low cost provides a defense against powerful suppliers by providing more flexibility to cope with input cost increases. Besides, low cost position also gives the firm a defense against rivalry from competitors, because its lower costs mean that it can still earn returns after its competitors have competed away their profits through rivalry.

In the construction industry, under the bidding system, if companies choose the overall cost leadership strategy, some issues related to their financial situations become critical, such as labor costs, sales force, cost of capital, basic earning power, profit margin on sales, return on total assets, and so on.²⁸ In order to achieve the target of cost leadership and survive within the lowest price bidding system, the firms tend to be conservative in their financing performance and pay close attention to their expenses in each corporate activity.

However, when a company pursues a cost leadership strategy, there are several risks which must be considered. It is important to make risks explicit in order to improve the firm's choice among the three alternatives. Some of these risks are: (1) technological change that nullifies past investments or learning; (2) low-cost learning by competitors through imitation; (3) inability to see required product or marketing change because of the attention placed on cost; and (4) inflation in costs that narrow the firm's

²⁸Concepts from Hami Levy & Sarnat, Marshall, *Capital Investment & Financial Decisions*, Prentice Hall, 1990.

ability to maintain enough of a price differential to offset competitors' approaches to differentiation.

4.5.2. The Differentiation Strategy

Differentiation requires a firm to create something from its products or services that can make the firm unique. A firm differentiates itself along several dimensions, such as technology, price, quality, customer service, dealer network, product design, and so on. Differentiation also creates a defensible position for coping with the five competitive forces. For instance, differentiation can mitigate buyer power, since buyers lack comparable alternatives and are thereby less price sensitive.

Even though differentiation can bring stronger competitive capability to a company, it must be recognized that to achieve differentiation implies a trade-off with overall cost position if the activities required in creating it are inherently costly, such as high quality raw materials, extensive research, product design, or intensive customer support. In other words, a company has to find the balance between cost leadership and the differentiation.

In the construction industry, under the nominated bidding system, if the firms choose the differentiation strategy, some issues become critical such as firm's reputation for quality and service, technical skills, facilities, economies of scale, and so on. Because if the firms have good reputation, high technical skills, or bigger economies of scale, normally, the owners will prefer these firms' features(the differentiation) and nominate the firms to attend the bidding or even directly select them to execute their projects without going through the bidding process.

However, when a company pursues its differentiation strategy, several risks have to be considered: (1) buyers' need for the differentiating factor falls; (2) imitation narrows perceived differentiation; (3) the cost differentiation between low-cost

competitors and the differentiated firm becomes too great for differentiation to hold brand loyalty. Thus, buyers sacrifice some of the features, or services possessed by the differentiated firm for large cost savings.

4.5.3. The Focus Strategy

The focus strategy results in a company's being able to serve its narrow strategic target more effectively or efficiently than competitors who are competing more broadly. In other words, a company achieves either lower costs in serving a particular target, or higher differentiation from better meeting the needs of this target, or both.

The entire focus strategy is built around serving a particular target very well, and each functional policy is developed with this in mind, whereas the low cost and differentiation strategies are aimed at achieving their objectives industrywide.

From the preceding sections, we know the cost leadership and differentiation strategies both can provide defenses against each competitive force. The focus strategy also can provide defenses against competitive forces by selecting targets where competitors are the weakest or where they don't pay attention.

In the construction industry, under the pre qualification bidding system, if the firms choose the focus strategy, some additional critical issues have to be considered, such as firm's, relative market share, R&D, geographical location, and so on. For example, if a construction company focuses on the power plant projects and is located in Asia, near most of developing countries, the company will have geographical advantage because most of developing countries have large requirements for power plants for their local industries.

However, when a company pursues its focus strategy, there are some risks which the company has to consider, such as when the differences in desired products or services between the strategic target and the market as a whole begins to narrow.

4.5.4. The Application of the Three Generic Competitive Strategies

This analytical tool is useful for explaining intuitive concepts and helping a firm describe how it should compete. When a firm applies this model, it should be aware that even though the three generic strategies are alternative, viable approaches to dealing with the competitive forces, the firm should always keep away from becoming "stuck in the middle."²⁹ In other words, the firm should not try to compete in two different squares of the matrix. For instance, a general contractor might attempt to win hard-money bid highway work and also attempt to negotiate sole source repeat work for hospitals. "This can lead to corporate schizophrenia---."³⁰ Because of conflicting requirements when hiring personnel, writing contracts, preparing correspondence or interacting with designers.

Moreover, since the analysis of this tool directly or indirectly influence the results of other analytical tools of strategic planning, during the process of strategic planning, firms have to consider all analyses together. For example, in the segmentation matrix of a construction firm in Asia, shown as Figure 4-16, the construction company chose highway, tunnel, bridge, M.R.T., and harbor projects to be its original strategic market. And in the open bidding system, the company also tried to get the cost leadership in the industry.

A few years later, the firm found out the construction market in Asia is changing, the competition among the existing firms is increasing, and the owners' requirements for the quality of the projects have become higher than in the past. It therefore decided to adjust its generic strategy. The firm would like to improve the quality and services of the

²⁹Michael Porter (1980) considers "stuck in the middle" as an extremely poor strategic situation since the firm failed to develop its strategy in at least one of the three directions.

³⁰John D. Macomber, "Strategic planning for Contractors," *Construction Business Review*, January-February 1991.

projects rather than stay with the cost leadership. In addition, the firm also focuses on highway, tunnel, and bridge projects instead of broad target markets (See Figure 4-18).

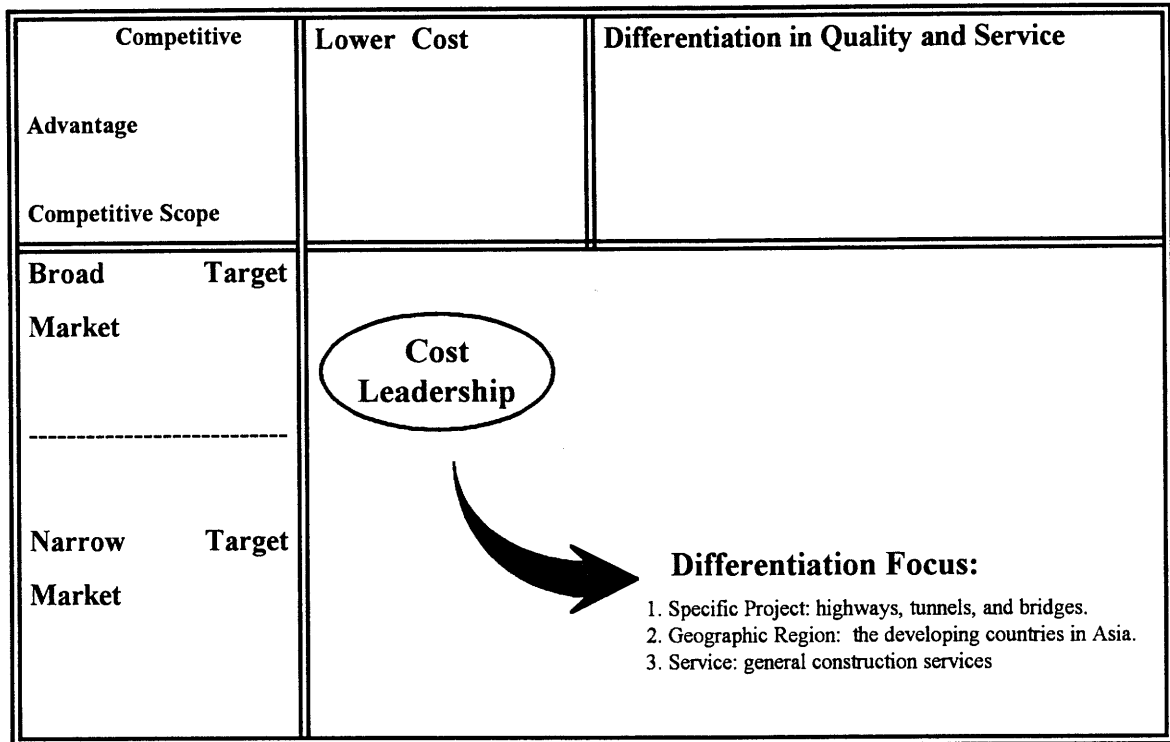


Figure 4-18. The Adjustment of the Three Generic Strategies of a Construction Firm in Asia

CHAPTER 5

ORGANIZATIONAL STRUCTURES

In order to approach the processes of strategic planning in different organizational structures, it is necessary to classify different types of organizations and to understand the features of each basic structure, such as its environment, age, size, and technical systems. Through comprehending its features and the flow of work, information, and authority flow, it is then possible to identify the processes of strategic planning in these organizations.

Based on the knowledge of the basic elements of the organization presented in Chapter 3, we can begin to classify different organizational structures. Henry Mintzberg's structural configurations are applied in this research. By considering a set of pulls exerted on the organization by each of its five visible basic elements in different directions, which are shown in Figure 5-1, Mintzberg classified all organizations into five basic models: the simple organization, the machine organization, the professional organization, the diversified organization, and the innovative organization.

5.1. THE SIMPLE ORGANIZATION

This model has the most sample structure in all organizations. The main pull force from the basic elements of the organization is *the strategic apex*. Most of administrative work and coordination is directly handled by the strategic apex instead of the middle-line managers. In other words, the middle line is less significant in the simple organization.

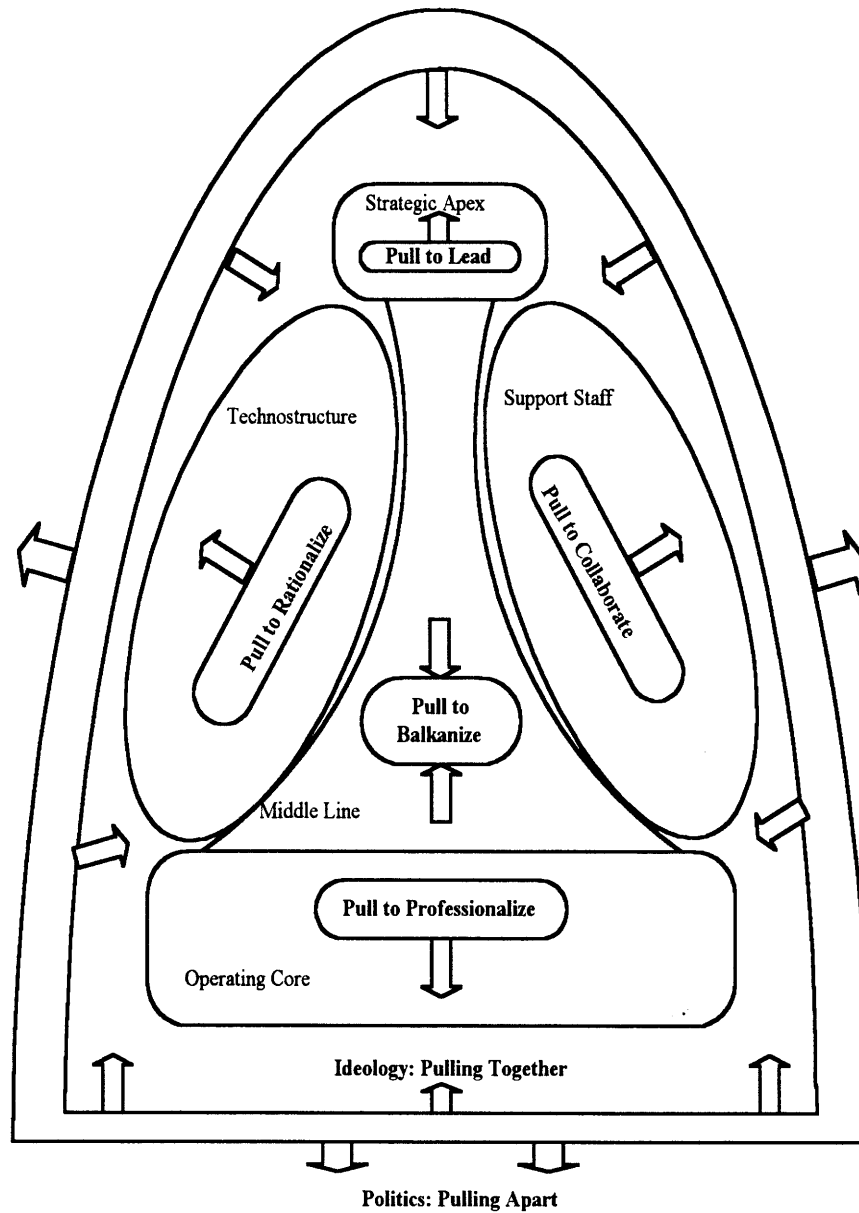


Figure 5-1. The Basic Pulls in the Organization³¹

³¹Excerpted from Quinn, James Brian & Henry Mintzberg, *The Strategy Process: Concepts and Contexts*, Prentice Hall, 1991.

Additionally, in this organization, the work of the operating core is informal and ill-defined; the size of the support staff is small, and the existence of a technostructure is probably not necessary (See Figure 5-2). A small-sized retail store, a corporation run by an aggressive entrepreneur, and most subcontractors are the typical examples.

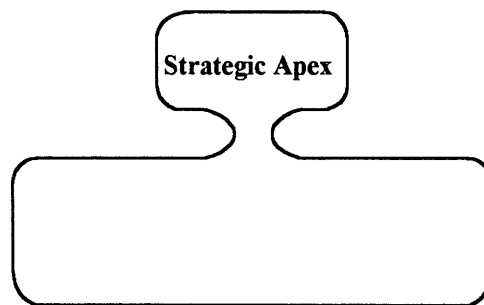


Figure 5-2. The Simple Organization³²

5.1.1. Features of the Simple Organization

The environment of the simple structure tends to be either simple or dynamic. A simple environment can be comprehended by a single individual, and so enables decision making to be controlled by that individual. Conversely, a dynamic environment is too complicated to be comprehended by a single individual, so the organization's future state cannot be predicted easily. In order to avoid risks, the organization is kept simple to be more flexible. Therefore, in both environments, the organizational structure must be lean, flexible and organic.

The simple organization is often young, small and aggressive. Generally speaking, a new company at the first stage of starting its business tends to adopt the simple organization. Because it doesn't have enough experiences and time to elaborate

³²Adapted from Henry Mintzberg, *The Structuring of Organizations*, Prentice Hall, 1979

its administrative structure, choosing a small size company would be an easy way to get into a industry. In addition, since the company is a new-comer, in order to share the existing markets or explore new markets, it has to be more aggressive than other companies.

The way of communication is informal. Since the organization is small and has no middle line, the strategic apex communicates with the operating core informally and directly.

5.1.2. The Process of Strategic Planning

The key word in the process of strategic planning is power. The power in the simple organization is centralized---the chief executive controls everything. Thus, the flows of authority and decision making are from the top---the strategic apex to the bottom---the operating core. Since the main pull force in that simple organization is the strategic apex, the organization has often been built around the personal needs and orientation of the leader and has been staffed with people loyal to the single individual.

Therefore, the process of strategic planning of the simple organization is: the strategic apex gets aggregate information from external and internal environments; then, it makes strategies for the organization; finally, it transfers these strategies down to the operating core to be implemented (See Figure 5-3).

There are some effective analytical tools that could be applied to the process of strategic planning in the simple organization. According to the features of the simple organization, we know this type of organization is young and small. Hence, it is very important for the entrepreneurs to understand the competition in the industry and define their focused strategies. For example, the strategic apex can use the segmentation matrix model, as shown as Figure 4-14, as an tool to analyze its focused segment in the

industry; then it can use the three generic competitive strategies model, as shown as Figure 4-17, to decide which generic strategy to choose.

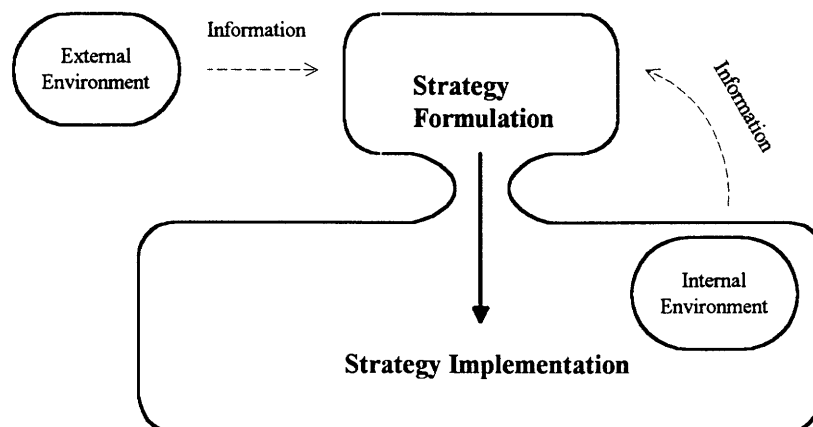


Figure 5-3. The Process of Strategic Planning in the Simple Organization

5.2. THE MACHINE ORGANIZATION

This model includes all six basic elements of the organization. The main pull force in the machine organization is *the technostructure*. Because the machine organization depends primarily on the standardization of its operating work for coordination, the technostructure, which does the analysis and standardizing, emerges as the key part of the organization. Hence, the technostructure in this model must be highly elaborated to formalize work. The tasks of the operating core are made simple, rationalized and repetitive, perhaps, requiring a minimum of skill and training. This is resulted from an emphasis on the standardization of work processes for coordination.

The middle line in this model is also elaborated and differentiated. There are

three prime tasks for which the middle-line managers are responsible. The first task is *to support the vertical flows in the organization*---the elaboration of action plans flowing down the hierarchy and the communication of feedback information back up. The second task is *to handle the disturbances that arise in the operating core*. The work is so standardized that when conflict happens, the problems cannot be worked out informally. Normally, many problems get bumped up successive steps in the hierarchy until they reach a level of common supervision where they can be resolved by authority. The third task is *to work with the staff analysts from the technostructure to incorporate their standards down into the operating units*.

The strategic apex in this model is the only part with a perspective broad enough to see all the functions; and its job is concerned in large part with the fine-tuning of their bureaucratic machines. By frequently intervening in the activities of the middle line, the strategic apex can ensure that coordination is achieved there. Additionally, the main work of the support staff in this model is to completely support other parts of the organization by elaborating its administrative jobs (See Figure 5-4). An airline, a post office, an automobile company, a steel company, and a middle-sized general contractor are the typical examples.

5.2.1. Features of the Machine Organization

The environment of the machine organization tends to be simple and stable. If the work is associated with complex or dynamic environments, the machine organization is not applicable, since the work cannot be rationalized into simple tasks and be predicted, made repetitive, and standardized.

The machine organization is often old and large. Generally speaking, if a company is a machine organization, it must be old enough to have been able to settle on

the standards they wish to use and large enough to have the volume of operating work needed for repetition and standardization.

The method of communication is formal. Since this kind of the organization is large and the regulating system is very hierarchical, the method of communication has to be very formal throughout the whole organization.

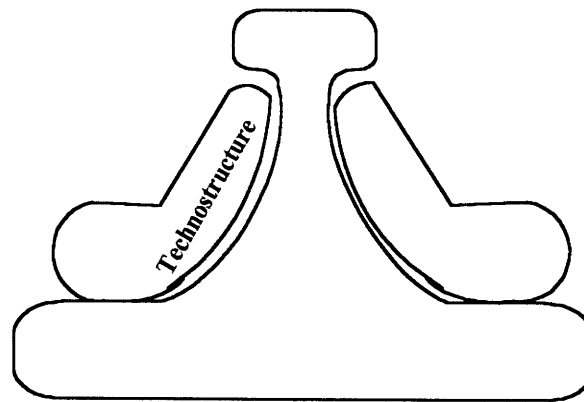


Figure 5-4. The Machine Organization³³

5.2.2. The Process of Strategic Planning

The power in the machine organization is centralized. Considerable power in the machine organization rests with the strategic apex. In general, the formal power clearly starts from the top, transfers to the middle level, and goes down to the bottom; this also means that hierarchy and flow of authority are paramount concepts from the very top---the strategic apex to the second level---the middle line, and finally to the bottom---the operating core. The only part of the machine organization which can share any real

³³Adapted from Henry Mintzberg, *The Structuring of Organizations*, Prentice Hall, 1979

informal power with the strategic apex is the technostructure. Because the role of the analysts of the technostructure play is to standardize everyone else's work, their abilities based on professional knowledge are heavily depended on by the strategic apex.

Therefore, the process of strategic planning of the machine organization is: the strategic apex firstly gets relevant information from the external environment and the middle line; secondly, it makes an integrated strategy for the organization; thirdly, it transfers the strategy to the middle-line managers to start the job of implementation; finally, the middle-line managers give orders to other parts of the organization (See Figure 5-5).

Some effective analytical tools could be applied to the process of strategic planning in the machine organization. Since the environment of the machine organization is simple and stable, the strategic apex doesn't need to worry too much about competitors. But this doesn't mean the organization can ignore competition in the industry. The environment can be changed at any time in the future, so the organization still has to know every move in the industry.

The strategic apex can use the value chain model, as shown as figure 4-3, to identify the main activities of the organization; next, it passes the model to the technostructure. The analysts of the technostructure can apply the value chain model again, as shown as figure 4-6, to help the organization subdivide the main activities and standardize all activities; then it passes the analysis to the middle-line managers; finally, according to the final analysis, the middle-line managers can implement the strategies.

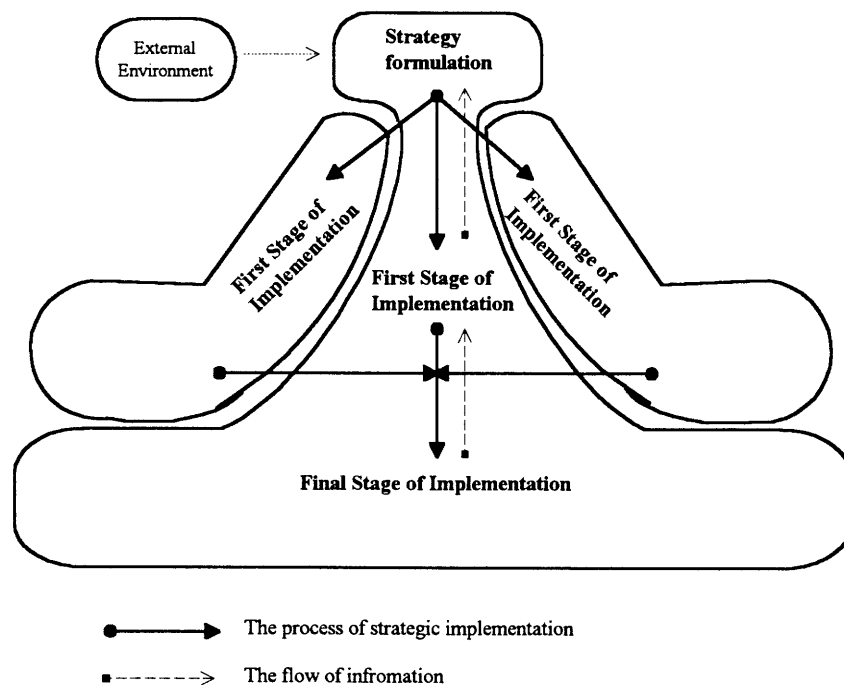


Figure 5-5. The Process of Strategic Planning in the Machine Organization

5.3. THE PROFESSIONAL ORGANIZATION

The main pull force in the professional organization is *the operating core*. This organization model relies a lot on the skills and knowledge of their operating professionals to function. Its work is complex, requiring that it be carried out and controlled by professionals; yet at the same time it remains stable, so that the skills of those professionals can be perfected through standardized operating programs.

Since the professional organization relies on the standardization of skills for coordination, it hires duly trained professionals for the operating core, then gives them considerable control over their own work. The professionals work relatively independently of their colleagues but closely with the clients they serve.

Because the professional organization is highly dependent on the operating core, in order to back up the top professionals, the support staff becomes very important and typically very large. Moreover, there is little need for the technostructure in this model, since the main standardization occurs as a result of training that takes place outside the organization. The middle-line managers are not very important either, since the operating professionals are quite sure what they are doing and know how to manage their work.

Compared with other organizational structures, the strategic apex in this model certainly lacks a good deal of power. But it still can perform a series of roles that can provide considerable indirect power, such as being a leader to guide the organization (See Figure 5-6). An engineering consulting company, a hospital, an university, and a law firm are the typical examples.

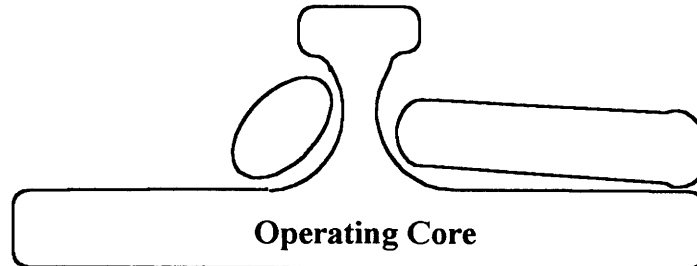


Figure 5-6. The Professional Organization³⁴

5.3.1. Features of the Professional Organization

The environment of the professional organization tends to be complex and stable. The professional form of organization appears wherever the operating work of

³⁴Adapted from Henry Mintzberg, *The Structuring of Organizations*, Prentice Hall, 1979

an organization is dominated by skilled workers who use procedures that are difficult to learn yet are well defined. In other words, the environment of this model is complex enough to require procedures that can be learned only through extensive training, and stable enough so that their use can become standardized.

The technical system of this model is not regulating or sophisticated. For example, if the technical system is highly regulating or automated, the professionals' skills might be amenable to rationalization; in other words, divided into simple, highly programmed steps that would destroy the basis for professional autonomy and thereby drive the organization to the machine organization. And if highly complicated, the technical system would reduce the professionals' autonomy by forcing them to work in multi-disciplinary teams, thereby driving the organization toward the innovative organization described in section 5.5 below.

5.3.2. The Process of Strategic Planning

The power in this model can be bureaucratic but without being too centralized. This is related to the levels of decision making in the professional organization. Basically, there are three levels of decision making in this model. *First of all is the professional judgment.* At this level, professionals are left to decide on their own only because years of training have ensured that they will decide in ways generally accepted in their professions.

The second level of decision making is the administrative endorsement. Some types of decisions, less related to the professional work, fall into the realm of what can be called administrative endorsement, such as some financial decisions to buy or sell property. In addition, because many of the support services are organized in a conventional top-down hierarchy, they tend to fall under the control of the central administration.

The third level of decision making is the collective choice. This level includes any other decisions which are determined neither by professional judgment nor by administrative endorsement. In other words, these decisions are handled in interactive processes that combine professionals with administrators from a variety of levels and units. For example, in an architecture & engineering firm, temporary design teams must be set up in the organization to communicate with specific project clients. These design teams must be selected by the organization's professionals---architects, ---and a representative of the administrative unit. Therefore, the decisions of the professional organization are made by "a community of individuals and groups, all of whom may have different roles and specialties, but who share common goals and objectives for the organization."³⁵

From the preceding statements, we know that in this model many people get involved in the process of strategic planning, including the various professionals and administrators, individually and collectively. Even though the flows of authority are not so obvious (except in the support staff), we still can try to identify the basic process of strategic planning in the professional organization: the professionals in the operating core get information from their clients directly; the strategic apex gets information from external environment; then, through the discussion among professionals and the strategic apex, the organization develops its strategies; finally, it transfers these strategies to the whole organization to be executed (See Figure 5-7).

Since the strategy formulation in the professional organization is decided by the strategic apex and the professionals of the operating core, there are some effective analytical tools that could be separately applied to both parts of the organization during the process of strategic planning. For example, the strategic apex can use the SWOT analysis model, as shown as Figure 4-8, to overview the totality of information about

³⁵Excerpted from Taylor, W. H., *The Nature of Policy Making in Universities*, 1983.

the environment and adjust the firm's intended mission. The professionals can use the five competitive forces model, as shown as Figure 4-2, to analyze the bargaining power of their clients. Moreover, the strategic apex can also apply the value chain model, as shown as Figure 4-3, to identify the activities of the organization and pass them down to the administrative and other parts of the organization.

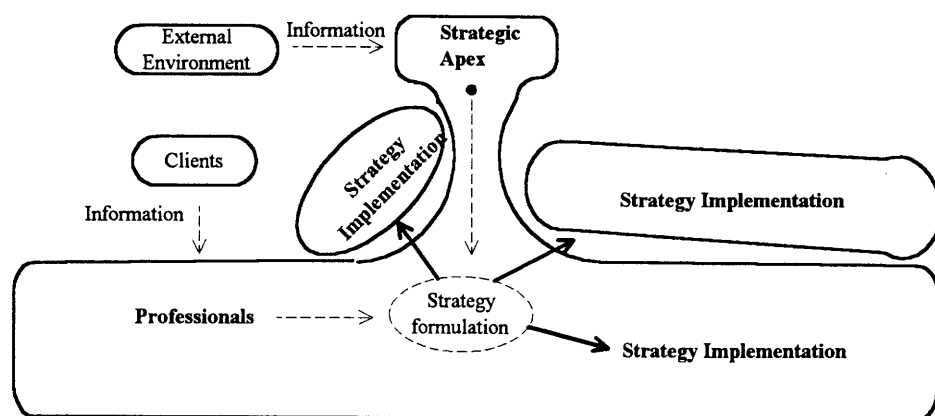


Figure 5-7. The Process of Strategic Planning in the Professional Organization

5.4. THE DIVERSIFIED ORGANIZATION

The main pull force in the diversified organization is from *the middle line*. Because this kind of the organization diversifies its product or service line and tends to create distinct structural divisions to deal with each distinct business, it is very important for the strategic apex to establish the powerful middle line to assist in managing the operation. Thus, the middle line becomes the main role in the diversified organization. The middle-line managers---the division managers are responsible for the performance of

their own divisions, so they must have considerable autonomy to manage them as they see fit.

The main job of the strategic apex in this model is to develop the overall corporate strategy and provide certain support services that are common to all the divisions. The strategic apex sets standards of achievement, such as growth in sales, and monitors the results. Therefore, the coordination of the diversified organization has to be based on the standardization of outputs.

Owing to the diversification and divisionalization of the organization, the operating core in each division tends to formalize its work. The size of the operating core in this model depends on the size of its middle line. In other words, the more middle line units, the bigger operating core size.

Moreover, the technostructure in the diversified organization appears in each division and the whole organization. The technostructure in each division is responsible for developing technical systems in their own business sector; the one at the total-organization level is oriented toward performance control. The support staff in a diversified organization is split between divisions and the whole organization (See Figure 5-8). The vast majority of the Fortune 500, most internationalized construction companies, and governments are the typical examples.

5.4.1. Features of the Diversified Organization

The diversified organization is often very large and old. In general, when organizations grow large, in order to spread the risk, they become inclined to diversify; and through diversification, the firms can find growth opportunities. As time goes by, organizations become larger as they grow older. If a company is the machine organization, it must be old enough to have been able to settle on the standards they

wish to use, and large enough to have the volume of operating work needed for repetition and standardization.

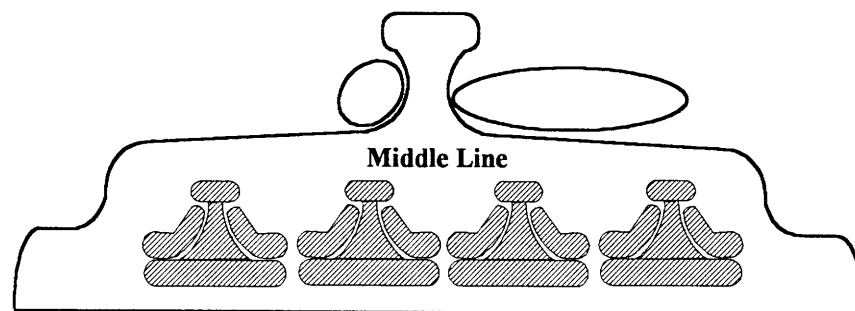


Figure 5-8. The Diversified Organization³⁶

The environment of the diversified organization is relatively simple and stable. If we compare this model with other organizational structures like the machine organization or the professional organization, the environment of the diversified organization is relatively simple and stable. If the environment were complicated and dynamic, organizations would be too busy dealing with their competitive environments and would not want to take an additional risk associated with divisionalizing their organizational structures. In other words, in order to maintain their traditional markets, organizations would like to keep staying in their original structures instead of investing lots of money to expand their organizations to diversified organizations.

³⁶Adapted from Henry Mintzberg, *The Structuring of Organizations*, Prentice Hall, 1979

5.4.2. The Process of Strategic Planning

The main power in the diversified organization is located not only in the strategic apex but also *in the middle line*. Because the diversified organization is an integrated entity that couples semi-autonomous divisions together with a central administrative structure---the headquarters, there is extensive delegation of authority from headquarters to the level of division manager. In terms of strategy, the strategic apex develops the corporate strategy and the middle-line managers develop division strategies in their own business sectors.

Therefore, the process of strategic planning of the diversified organization is: the strategic apex gets information from external environment and makes the overall corporate strategy; next, it passes the strategy to the middle line and other parts of the organization; then, the middle-line managers collect relative information from their business environments and according to the corporate strategy, they develop their own division strategies; finally, the middle-lined managers transfer these strategies down to other parts of their own divisions to be implemented (See Figure 5-9).

There are some effective analytical tools that could be applied to the process of strategic planning in the diversified organization. From the preceding description, it is obvious that the strategic apex makes the overall corporate strategy. Hence, before it makes the strategy, it is very important to examine the company's strengths, weaknesses, opportunities, and threats in its environments.

The SWOT analysis could be used to offer a brief overview of the firm's environment and relevant information, and help the strategic apex set up the firm's mission (See Figure 4-8). Moreover, in a diversified organization, it is also very important to decide what business sectors to enter. In other words, the strategic apex must decide how many divisions the firm should have. By examining the result of the

SWOT analysis and applying the value system model, as shown as Figure 4-4, the firm can figure out its up stream industries and down stream industries; then it decides what other related industries it can explore. The middle line of the diversified organization plays the main role during the process of strategic planning, because it always has to pay attention to the latest information in its industry and submit the suggestions to the strategic apex for making the corporate strategy.

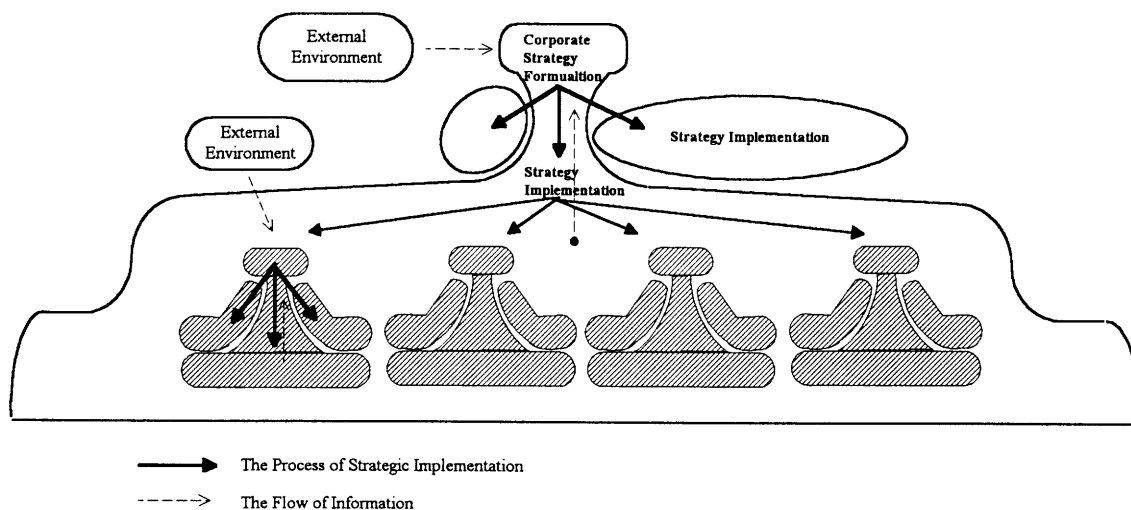


Figure 5-9. The Process of Strategic Planning in the Diversified Organization

Thus, for the middle-line managers it is crucial to know the state of competition in its industry by using the five competitive forces model (See Figure 4-2). Moreover, in order to identify the business sectors that different divisions should get into, the middle-line managers can use the value chain model to diagnose competitive advantage in their industries (See Figure 4-3 & Figure 4-6).

5.5. THE INNOVATIVE ORGANIZATION

The innovative organization, which is also called "adhocracy," is a highly organic structure. The main pull force in the innovative organization is from *the support staff* at different levels of the organization. Especially, the experts from the support staff play the main role in the organization. These experts are grouped in functional units for specialized housekeeping purposes---hiring, training, and professional communication---and are then deployed in project teams to carry out the basic work of innovation. Hence, there are no obvious lines among the middle line, the technostructure, the support staff and the operating core. This also explains why the coordination of the innovative organization has to rely on mutual adjustment among its highly trained and highly specialized experts rather than on any form of standardization. In addition, the main jobs of the strategic apex in this model is to monitor the projects and to fuse the individualistic experts into smoothly functioning teams (See Figure 5-10). A small-sized general contracting company, project teams in a large-sized general contracting company, and special surgery groups in a hospital are the typical examples.

5.5.1. Features of the Innovative Organization

The environment of the innovative organization tends to be complex and dynamic. Since a complex and dynamic environment is full of unpredictable changes, the organization has to be flexible and organic. The big difference between the simple organization and the innovative organization is: the former is more centralized and the latter is more decentralized. In order to deal with various cases, this type of the organization chooses to be decentralized and dependent on its experts.

Innovative organizations are often young. Because young organizations tends to find their own ways in their industries, they try to be eager to innovate in order to compete with existing firms. But if old organizations feel competition strongly enough from

newcomers, sometimes they will be forced into an innovative structure in order to survive.

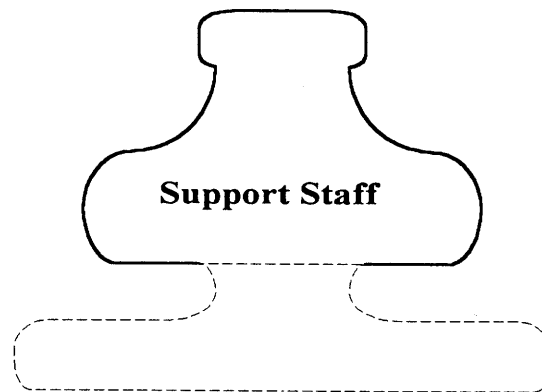


Figure 5-10. The Innovative Organization³⁷

The method of communication is informal. Since the organization is organic, flexible and composed of different experts, the method of communication tends to be informal. Normally, through the informal procedure, the strategic apex is able to use persuasion, negotiation, coalition, and reputation to communicate with the experts and resolve the conflicts in the organization.

5.5.2. The Process of Strategic Planning

The power in the innovative organization is decentralized to its experts. Thus, the flows of authority become insignificant. In other words, the organization combines fluid working arrangements with power based on its expertise instead of authority.

³⁷Adapted from Henry Mintzberg, *The Structuring of Organizations*, Prentice Hall, 1979.

Since the organization must respond continuously to a complex, unpredictable environment, it cannot rely heavily on deliberate corporate strategy. Basically, the process of strategic planning is: the strategic apex drafts the basic overall corporate strategy and passes it to the experts at different levels of the organization; then, after collecting related information from external environment, the experts feedback their opinions based on their professional knowledge and judgment; according to the experts advice, the strategic apex adjusts the corporate strategy and passes it to other parts of the organization; finally, the experts make the strategies for their own projects (See Figure 5-11).

Some effective analytical tools could be applied to the process of strategic planning in this model. According to the process of the strategic planning in the innovative organization, the strategic apex is just the symbol of the organization. Its main job is to give the firm a direction and show where the firm should go.

Therefore, the strategic apex just needs to draft the firm's intended mission and pass it on to the experts; then, the experts, who directly face the complex and dynamic environment, should carefully analyze the draft of the corporate strategy by using the segmentation matrix model to identify the firm's competitive positions (See Figure 4-14). Next, they can apply the five competitive forces model to examine the firm's environment (See Figure 4-11); and, they can use the SWOT analysis model to help the firm to understand its current internal situation(see Figure 4-8).

Lastly, they can feedback their advice to the strategic apex. The strategic apex will adjust its original corporate strategy and authorize the experts to make their own project strategies. After ensuring the final corporate strategy, the experts can use the value chain model to identify the activities in their projects (See Figure 4-3 & 4-6); and use the three generic strategies model to make project strategies (See Figure 4-17).

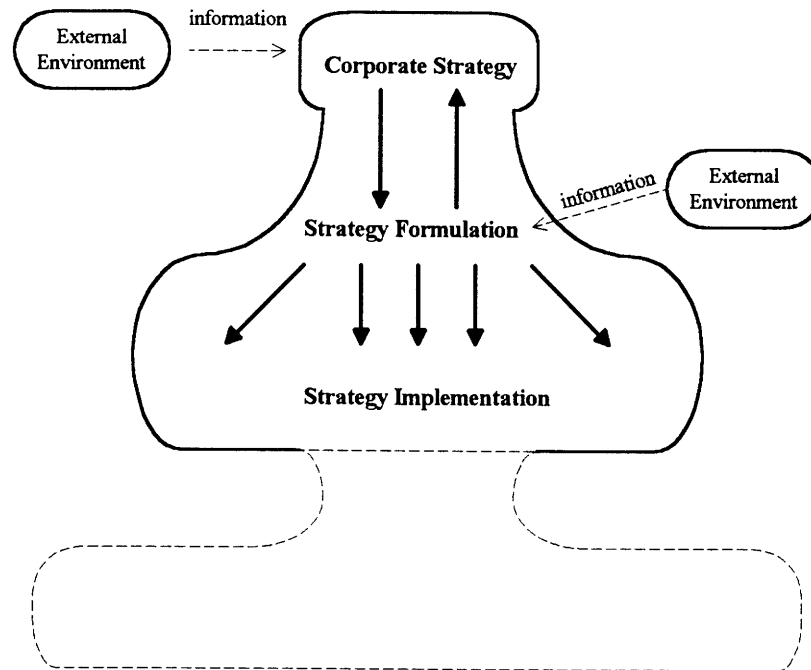


Figure 5-11. The Process of Strategic Planning in the Innovative Organization

5.6. OTHER TYPES OF ORGANIZATIONS³⁸

From the ideology point of view, (which is the invisible element of the organization), the sixth organization can be called the missionary organization. All basic visible elements of the organization are encouraged to pull together by the main force---the ideology,---which means a rich system of values and beliefs about an organization, shared by its members, that distinguishes it from other organizations. The key feature of such an ideology is its unifying power: it ties the individual to the organization and generates a sense of mission to produce synergy (See Figure 5-12).

³⁸Excerpted from Henry Mintzberg, *Power in and Around Organizations*, Prentice Hall, 1983.

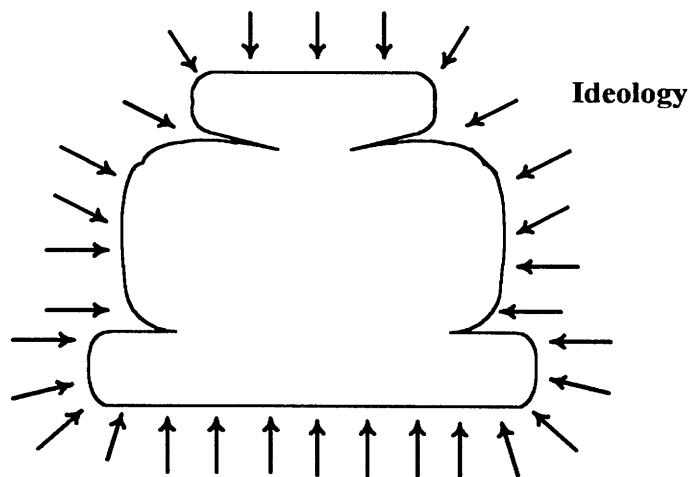


Figure 5-12. The Missionary Organization³⁹

From the political power point of view, a seventh type of the organization is created---the political organization. This type of the organization is based on the concept that the organizations' goals and directions are determined primarily by the power needs of those who populate them. In this model, basically, the process of the strategic planning is considered as an interplay of the forces of power which are sometimes highly politicized. This is in sharp contrast to assuming that organizations are consistent, coherent and cooperative systems.

Here, political power means that power in the organization is not formally authorized, widely accepted, nor officially certified. Normally, the political activity in the organization is divisive and conflicting. In other words, the political power usually puts individuals or groups in opposition to the more legitimate systems of influence; and, when those systems are weak, in opposition to each other (See Figure 5-13).

³⁹Excerpted from Quinn, James Brian & Henry Mintzberg, *The Strategy Process: Concepts and Contexts*, Prentice Hall, 1991.

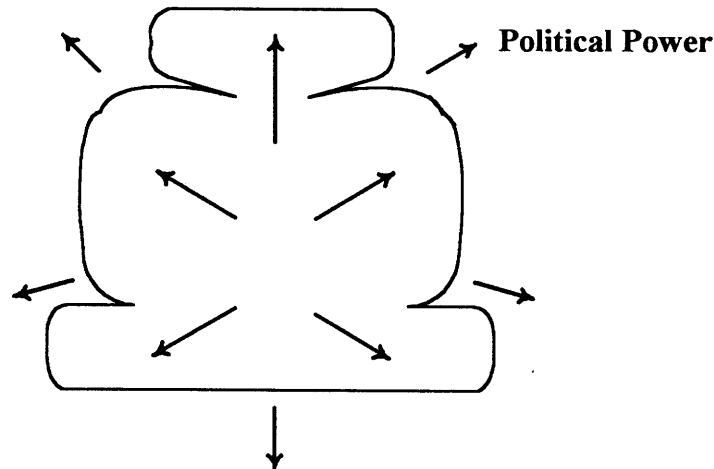


Figure 5-13. The Political Organization⁴⁰

The concepts of the preceding two types of the organization are relatively abstract. A company can be shown as any one of five basic organization models and, at the same time, shown as to be either a missionary organization or a political organization. For example, a firm could have the features of a professional organization and also be a political organization.

5.7. EFFECTIVE ORGANIZATION

At the beginning of this chapter, it was mentioned that five basic models result from a number of pulls, which is an exerted on the organization by each of its five basic visible elements. In order to survive in the complex business environment, every company must choose an effective organizational structure to fit in its industry. The results of this are that every organization becomes unique. In other words, the

⁴⁰Excerpted from Quinn, James Brian & Henry Mintzberg, *The Strategy Process: Concepts and Contexts*, Prentice Hall, 1991.

organizational structures are more complicated than the models, and often cannot be classified exactly into any one typical models. However, at a minimum, they can be located somewhere among these configurations, and described in terms of the characteristics Figure 5-14, the Pentagon of Organizational Structures.

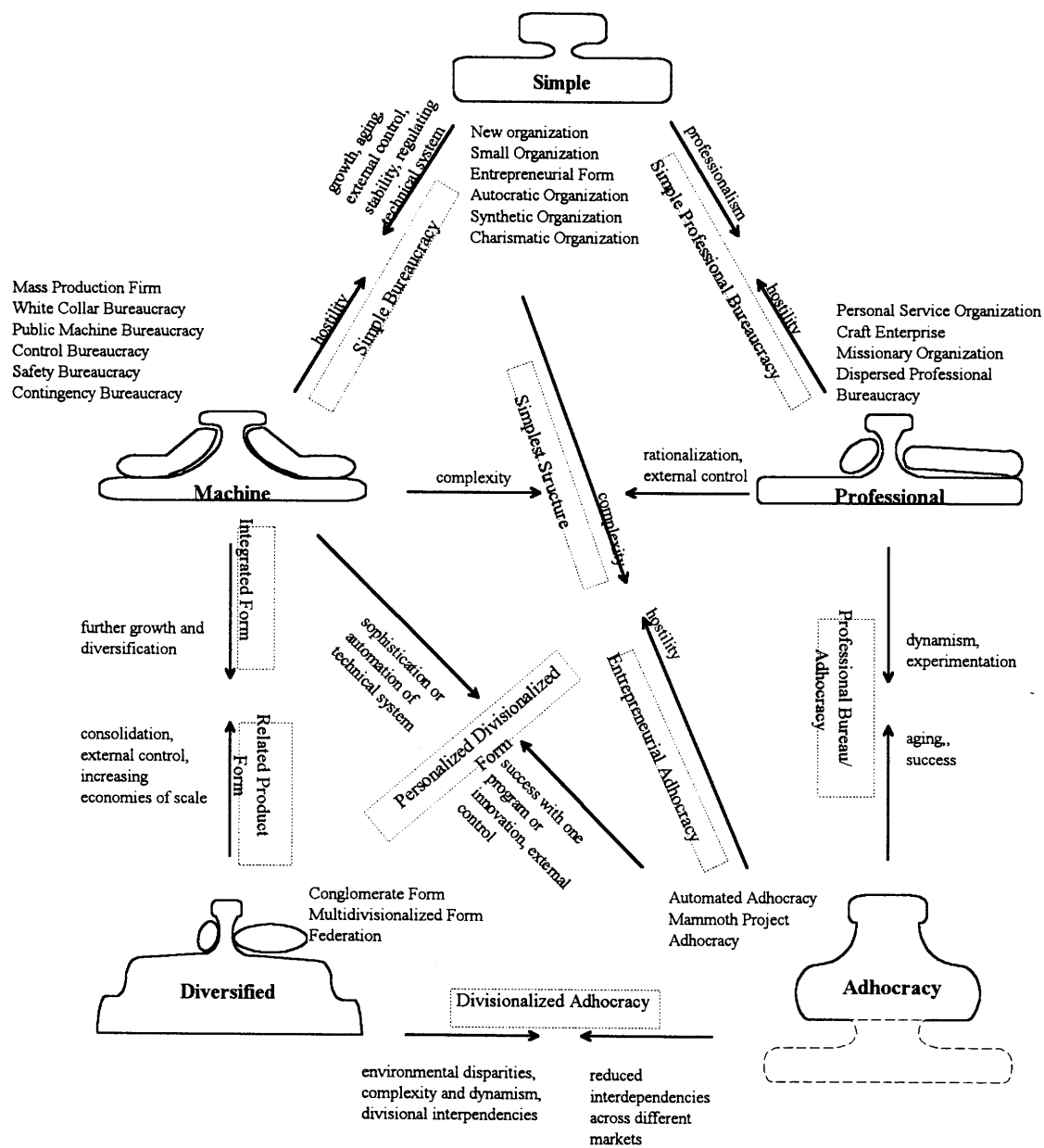


Figure 5-14. The Pentagon of Organizational Structures⁴¹

⁴¹ Adapted from Henry Mintzberg, *The Structuring of Organizations*, Prentice Hall, 1979.

CHAPTER 6

A CASE EXAMPLE AND CONCLUSIONS

When a construction company applies the preceding methods, findings and discussions to its organization, it must always keep one thing in mind: the characteristics of the construction industry, which were discussed in the Chapter 2. Those unique features directly or indirectly influence the processes of strategic planning. For instance, if a construction company wants to set up overseas branches, it has to consider: risks and uncertainties resulting from the instabilities of political and economic issues; the kinds of bidding system used by local governments; how to cooperate with local contractors or subcontractors; and so on. In addition, adopting different organizational structure for the firm's overseas branches will also result in different processes of strategic planning in each of its branch. And, different strategies will create different activities in each branch and even different information needs. All these considerations will influence the parent company's overall corporate strategy.

In the next section, the Formosa Construction Company, which is one of the top 20 construction firms in Taiwan has been selected as a case example to which to apply the main concepts of this research.

6.1. A CASE EXAMPLE

The presentation of the case example consists of the following: (1) an introduction of the background of the company; (2) description of current major problems; (3) identification of the company's organizational structure and of process of strategic planning; (4) application of the analytical tools to the process of strategic planning; (5) and, a set of recommendations for the company.

6.1.1. Background

The Formosa Construction Company (FCC)⁴², one of the top 20 construction companies in Taiwan, was established in China in the early 1900's. Owing to the change in the political situation in China, the company had to move to Taiwan in 1949. By 1993, the firm has grown into a \$ 120 million company employing 500 people. Four years ago, FCC got into the American construction industry by merging with the Western Bridge Company⁴³; and two year ago, FCC began to explore the real estate market in China. The firm focuses on residential buildings, commercial buildings, hospitals, and public sector projects, such as highways, tunnels, bridges, airports, dams, railroads, subways, and mass rapid transit (MRT) systems. The size of its projects range from \$ 12 million to \$ 200 million.

Additionally, FCC has five subsidiary companies. Each of the subsidiary companies performs its services both as an independent entity and as a component of FCC group teams on total projects. Each is a separate marketing or resource center with an executive managing director responsible for its growth, development and maintenance. For example, Mainland Company is a general construction firm. It offers its services to clients both as part of design/build projects and as an independent contractor. Fortune Company offers financing services both independent of and as components of larger FCC group projects. The organizational chart of FCC is shown as Figure 6-1.

⁴²The real name of the company has been changed.

⁴³The real name of the company has been changed.

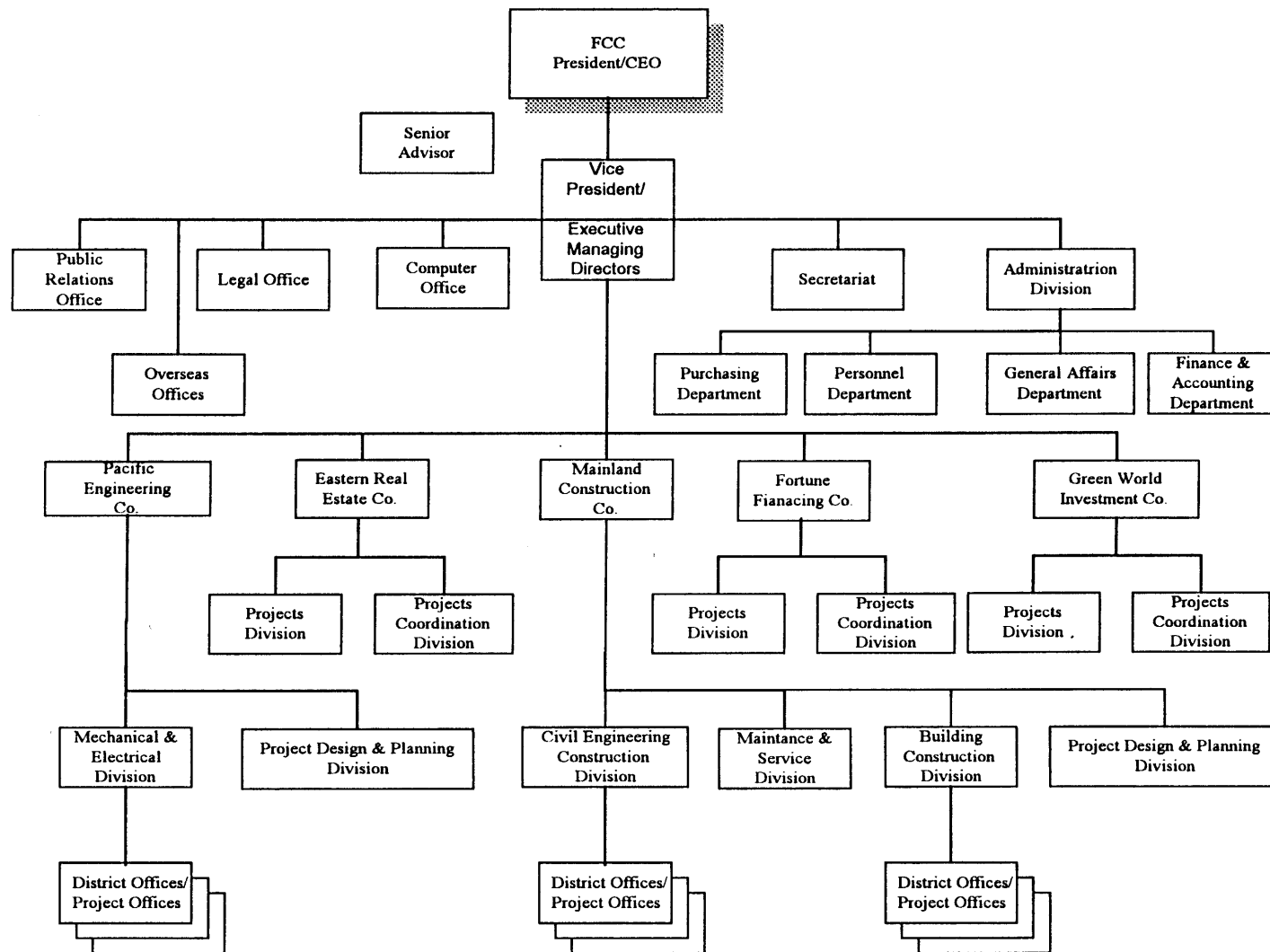


Figure 6-1. Formosa Construction Company Organization

The executive managing directors of the five companies make up the strategic planning committee. This committee acts as top management for the FCC group and meets monthly to implement the strategic goals set for the group. The organizational structure of FCC is a two-dimensional matrix. One axis is comprised of the various technical and functional specialties. Each specialty is part of one or another of FCC's subsidiary companies and has a managing director who is responsible for growing, training, and maintaining that specialty as a resource to the group. These managing directors allocate the efforts of their respective resource groups to projects on the basis of priorities set by the strategic planning committee. Allocation of resources is extremely flexible. They could be redeployed quickly when the need arises. People assigned to project teams are carefully selected since these teams have to achieve the objectives of the clients, the subsidiary companies, and FCC group without conflict.

The other axis consists of individual projects, such as investment, design, engineering, construction, financing, real estate, and so on, or any combination of these. Each project is supervised by marketing managers prior to contract award, and by project managers after award. Effort is made to select a team in the early stages of a proposal which would stay with the project throughout its life. This has proven effective in establishing working relationships with clients, as well as eliciting early commitment from the implementation team during developmental stages of a project.

To provide continuity, the marketing manager tries whenever possible to include the prospective project manager, project engineer, and superintendent for construction in planning sessions prior to making a final proposal to the client. Each project manager is responsible for coordinating and overseeing the contributions to his or her projects from the various resource groups. Because project managers are constantly in competition with one another for scarce resources, the interpersonal and political ability of each have a major effect on the progress of his or her project.

Since the end of the 1980's, the construction market has been growing in Taiwan in both the private sector and the public sector. In 1990, the government proposed the Six-year National Development Plan and parts of the plan began to be implemented in 1992. The total budget of the plan is up to \$303 billion. Two major parts of this plan are directly related to the construction industry. One is energy and the other is transportation. The former includes a new oil harbor and a new nuclear power plant. The latter includes new highway systems, high-speed railroads, and mass rapid transit systems. Moreover, throughout Asia, the developing countries, such as China, Malaysia, Thailand and other south-eastern countries, public sector works are also increasing rapidly.

6.1.2. Current Major Problems

There are five major problems, which FCC has been trying to resolve. These include :

(1) A lack of focus in the firm's mission. A review of the marketing strategies of FCC reveals that its mission for the 1990's is too broad to identify the specific directions of the firm. In other words, the firm is unable to utilize its forte and concentrate on high potential markets. Moreover, the firm attempts to win the lowest price bid highway work and also attempts to negotiate sole source repeat work for hospitals. This has led to corporate schizophrenia because of conflicting requirements when hiring personnel, writing contracts, preparing correspondence or interacting with designers.

(2) A shortage of capable marketing managers. FCC has several operations managers. But no one senior manager provides FCC with a single view of marketing and sales, and the capabilities to cope with the changes both in traditional markets and new markets. This has resulted in the loss of some potential markets.

(3) A deficiency of active entrepreneurial spirit among employees, especially, senior managers. "Senior managers who perform all the managerial roles of the chief executive... also lead their members; develop a network of liaison contacts; monitor the environment and their own unit's activities and transmit some or the information they receive into his own unit, up the hierarchy, and outside the chain of command; negotiate with outsiders; initiate strategic change; and handle exceptions and conflicts."⁴⁴

Senior managers are crucial people in the organizations. But, in FCC, many of them are near retirement and are not tough enough to handle intractable situations, such as presented by dynamic and changing markets.

(4) A lack of capable operating managers to handle the changing demands of more complex projects. Although there are several capable operations managers in some of the groups, FCC still needs to strengthen the capability of operations managers in complicated projects, especially, in the strategic and growing markets.

(5) An excess of general and administrative expense. Owing to the low backlog of FCC, general and administrative expense are excessive. This situation has resulted in poor financial performance.

6.1.3. The Company's Organizational Structure

By considering the organizational chart and the characteristics of FCC, its organizational structure can be classified as a diversified adhocracy, as shown as Figure 6-2. Specifically, the company can be located somewhere between the diversified organization and the innovation organization, as shown as Figure 6-3.

For instance, the following characteristics of FCC indicate its diversified tendency: (1) marketing diversity---each of subsidiary companies performs its own services; (2) grouping units at the top of the middle line---each unit is a separate

⁴⁴Adapted from Henry Mintzberg, *The Structuring of Organizations*. Prentice Hall, 1979.

marketing or resource center with an executive managing director responsible for its growth, development, and maintenance; (3) standardization of outputs---the strategic planning committee examines the overall outputs from different subsidiary companies; (4) formulation of divisions---FCC includes Mainland Company, Fortune Company, Green World Company, Western Bridge Company, and Pacific Company.

Other characteristics of FCC show its adhocracy tendency: each proposal team works with potential clients; FCC is composed of various technical and functional specialists; FCC is represented by individual projects, which might be investment, design, engineering, construction, financing management, and so on, or any combination of these.

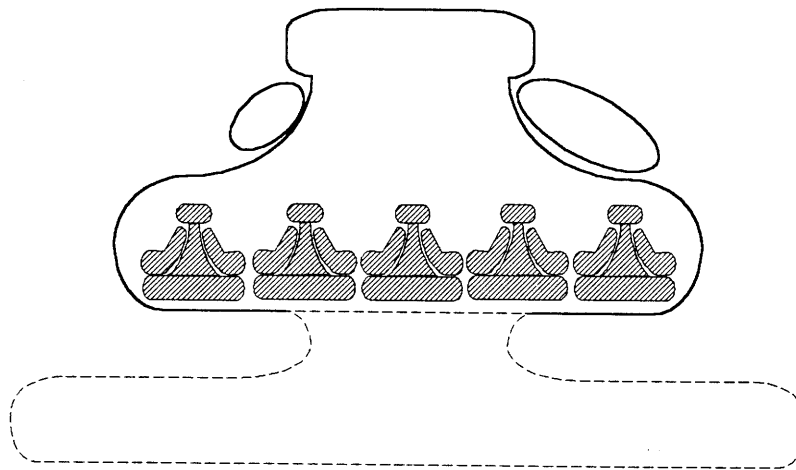


Figure 6-2. The Diversified Adhocracy

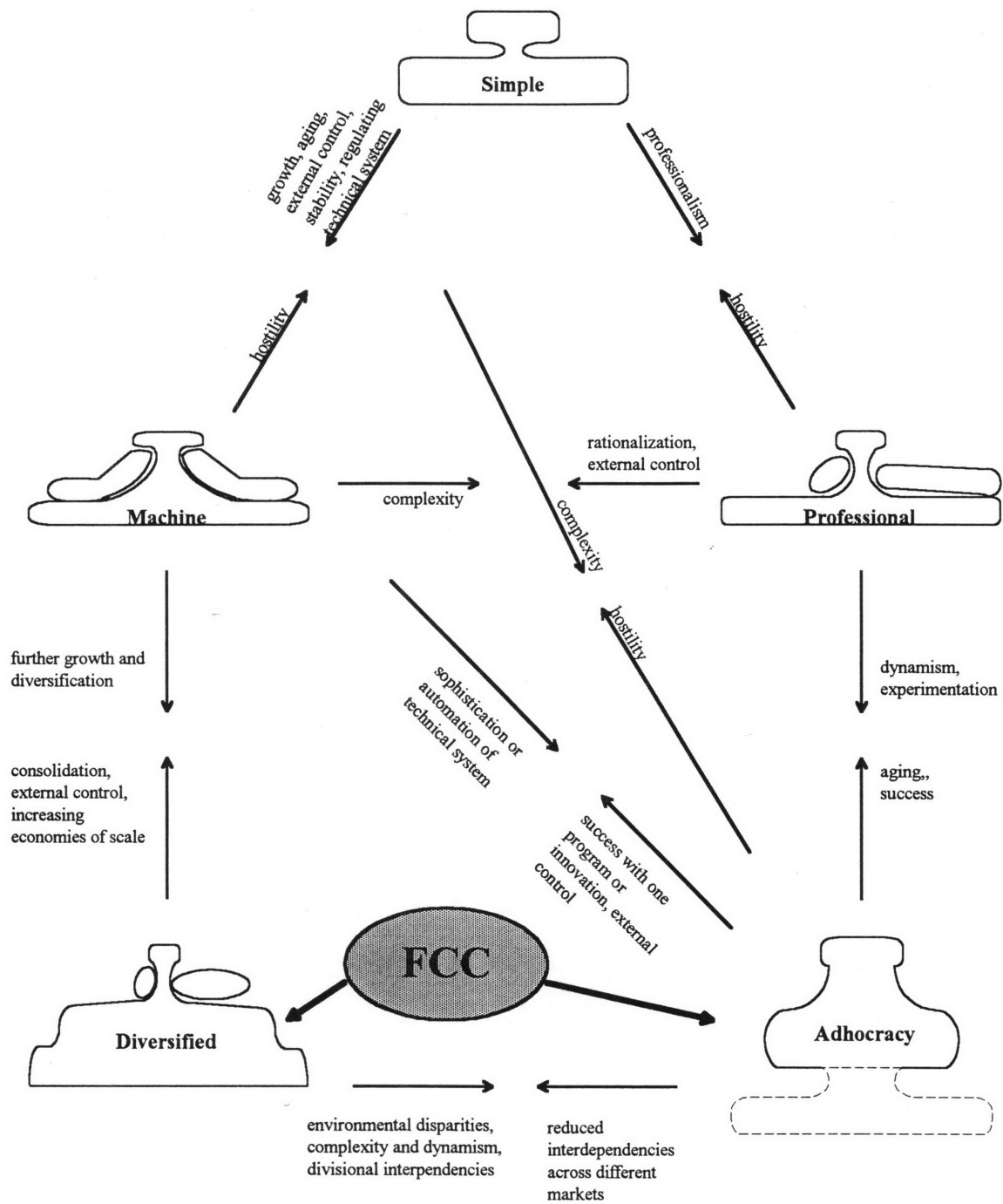


Figure 6-3. The Location of FCC in the Pentagon

Since FCC's features fall between a typical diversified organization and an innovative organization, the process of strategic planning has been adjusted as follows: The main power is not only located in the strategic apex but also in the middle-line managers---the executive managing directors, who are also called experts and the main members of the strategic planning committee in this organization. Therefore, the strategic apex drafts the overall corporate strategy and passes it to the middle line experts. Next, based on their professional knowledge and judgment, the middle line experts propose their opinions in a strategic planning committee meeting. During the meeting, the strategic apex make a final decision for the corporate strategy and gives the authority to the executive managing directors to develop and implement their own division strategies (See Figure 6-4).

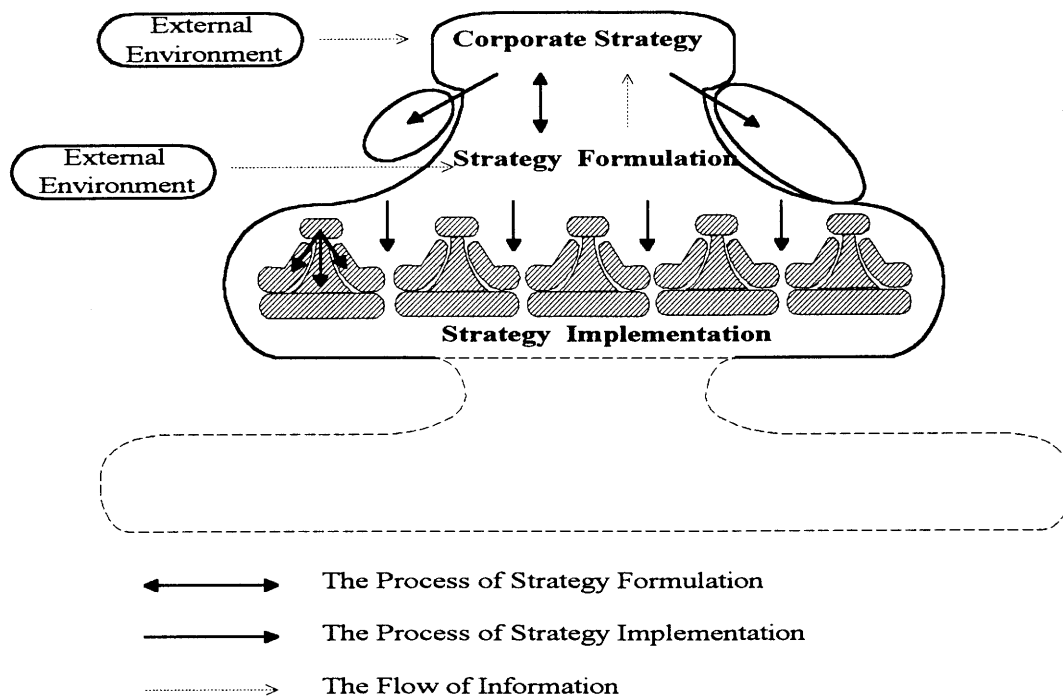


Figure 6-4. The Process of Strategic Planning in FCC

6.1.4. Analysis of the Company's Strategy

In the chapter four, five forces were explained which directly affects a firm's ability to attain and sustain a competitive position within its industry. Therefore, a decision with strategic implications should be made only after considering the impact of the decision's likely consequences on the firm's position relative to these five forces.

Moreover, it was also indicated that by identifying a firm's strengths and weaknesses, the firm can find what its opportunities and threats are in the industry. Based on the results of these analyses, a firm can clearly defined a mission to adapt successfully to the rapid changes of a highly uncertain and competitive marketplace.

Therefore, when the strategic apex of FCC drafts the overall corporate strategy, it is very important to understand what's going on in the overall business environment and how's the firm's performance measures up to the rest of the industry. The strategic apex can use the five competitive forces model to show the state of competition in the construction industry in Taiwan; and the SWOT analysis to exam the firm's performance. Next, according to the draft of corporate strategy, the executive managing directors can use the segmentation matrix to analyze the strategic marketplaces of subsidiary companies and feedback to the strategic apex. Finally, the strategic apex modifies the overall corporate strategy and identifies executive activities in the value chain.

- **The Five Forces Analysis:**

The most significant forces in the five competitive forces model are the bargaining power of buyers and rivalry among existing firms. Both of them are related to the current construction market in Taiwan, but the latter has also resulted from an unfair competitive environment. The following are the results of a five force analysis for FCC.

(1) Threat of new entrants is low. In Taiwan, all general contractors are classified into three levels (A, B, and C levels) and are required to obtain a government license to perform construction works. Additionally, every new entrant has to begin his or her business from level C; and, only after two years, the company can apply for upgrading to next level. In other words, it takes at least four years to upgrade to level A.

(2) Intensity of rivalry among existing firms is high. By 1994, there were more than 2000 general contractors in level A. Only about 10 of them can compete with FCC in size, experience, and capital, but the intensity of rivalry among the top 20 firms is high. Especially, the Retired Service Men's Engineering Agency (RSMEA), which belongs to the government, is the most competitive firm to other large private firms like FCC and also the biggest general contractor in Taiwan with more than 12,000 employees.

(3) Bargaining power of buyers is high. Most FCC's projects are focused on the public sector. According to the regulations of the government, public works must be awarded through open bidding and the lowest price bidder will get job. But the government sometimes will directly nominate RSMEA to execute public projects and this has resulted in an unfair competitive business environment.

(4) Bargaining power of suppliers is medium. From the general contractor's point of view, its suppliers include the subcontractors and materials suppliers. General contractors will award their works to subcontractors by negotiating or bidding. Basically, the strength of bargaining power of subcontractors is directly related to the location of the projects and also the cooperation experience in the past between general contractors and subcontractors. The strength of bargaining power of materials suppliers is changeable and depends on what kinds of materials that contractors have to buy.

For example, the cement industry is a monopoly industry in Taiwan and this increases the bargaining power of cement suppliers. Generally speaking, the bargaining power of suppliers is medium for general contractors.

(5) Threat of substitutes is low. Most projects in the construction industry are unique. In other words, the threat of substitutes is not significant.

More details of the analysis of each competitive force is shown as Figure 6-5. The overall five forces analysis of the construction industry in Taiwan is shown as Figure 6-6.

Competitive Force	Strength	Competitive Force	Strength
Threat of New Entrants		Rivalry Among Existing Firms	
Economy of scale	5	Industry growth	5
Proprietary product differences	4	Fixed cost/value added	3
Brand identity	4	Intermittent over capacity	5
Switching costs	4	Product differences	5
Capital requirements	2	Brand identity	4
Access to distribution	4	Switching costs	4
Proprietary learning curve	3	Concentration and balance	5
Access to inputs	4	Informational complexity	5
Proprietary product design	5	Diversity of competitors	5
Government policy	5	Corporate stakes	5
Expected retaliation	5	Exit barriers	1
Bargaining Power of Supplier		Bargaining Power of Buyer	
Differentiation of inputs	4	Buyer concentration	5
Switching Costs of Suppliers	2	Buyer volume	3
Presence of substitute products	2	Buyer switching costs relative to firm switching cost	5
Importance of volume to suppliers	4	Buyer information	5
Cost relative to total purchases	4	Ability to backward integrate	1
Impacts of inputs on cost or differentiation	4	Substitute products	1
Threat of forward integration	2	Price/total purchase	5
		Product differences	5
Threat of Substitutes		Brand identity	5
Relative price performance of substitutes	0	Impact on quality/performance	5
Switching costs	0	Buyer profit	3
Buyer propensity to substitutes	0	Decision makers incentives	3

Figure 6-5. The Analysis of Each Competitive Force for the Construction Industry in Taiwan⁴⁵

⁴⁵The analysis is based on the general open bidding system.

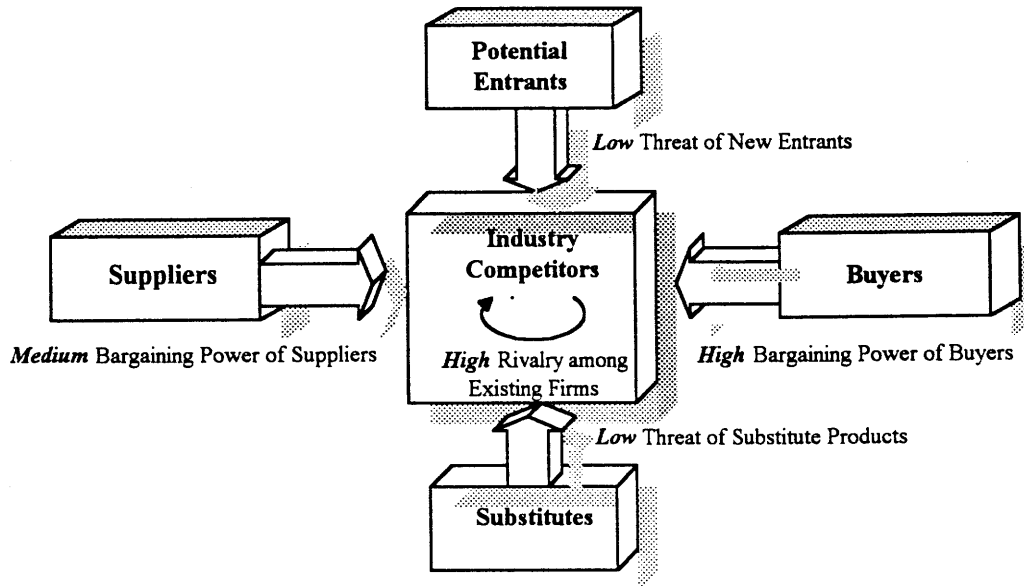


Figure 6-6. The Five Forces Analysis of the Construction Industry in Taiwan

- **The SWOT Analysis:**

FCC's original mission is to provide engineering, design, construction, investment, financing, real estate services to its clients, such as public sector clients in highways, tunnels, bridges, subways, and mass rapid transit (MRT) systems and the private sector clients in hospitals, residential buildings, and commercial buildings. Based on this mission, the performance of FCC are from its well-known reputation and low labor costs. Combining with high financial resource availability, the firm can find new opportunities by getting into other potential markets, or investing more money in R&D. The weaknesses of FCC are its low financial profitability, lack of a sufficient number of capable managers and low flexibility of the organizational structure. These have resulted in the threats from excessive general and administrative expenses and the firm's slow response to changing conditions.

	Performance					Importance		
Strength to Weakness	+2	+1	0	-1	-2	Hi	Med	Low
Marketing Strengths								
Company is well-known & highly regarded	♦					♣		
Company has a strong relative market share	♦					♣		
Good reputation for quality			♦			♣		
Good reputation for service			♦			♣		
Low labor costs		♦					♣	
Low distribution costs			♦					♣
Effective R&D and innovation		♦					♣	
Effective sales force				♦		♣		
Geographical advantage		♦					♣	
Raw material advantage			♦				♣	
Financial Strengths								
Low cost of capital		♦					♣	
High availability	♦					♣		
High profitability				♦		♣		
Financial stability		♦					♣	

Figure 6-7. The SWOT Analysis of FCC

	Performance					Importance		
Strength to Weakness	+2	+1	0	-1	-2	Hi	Med	Low
Producing Strengths								
New, well-equipped facilities		♦					♣	
Strong economies of scale	♦					♣		
Capacity to meet demand		♦				♣		
Ability to deliver on time			♦			♣		
Ability and dedicated workforce		♦					♣	
Technical skill		♦					♣	
Organizational Strengths								
Enlightened, visionary leadership		♦					♣	
Capable managers			♦			♣		
Dedicated workers			♦				♣	
Entrepreneurial orientation		♦					♣	
Flexible and adaptable				♦		♣		
Speedy response to changing conditions				♦		♣		

Figure 6-7. The SWOT Analysis of FCC (Continued)

- **The Segmentation Matrix Analysis:**

There are three ways to present FCC's construction market in the segmentation matrix analysis. They are original strategic market, expertise market, and growing market. (1) Original strategic market: FCC's original strategic markets, which are based on the types of projects and decided by the strategic apex, focus on commercial buildings, residential buildings, hospitals, highways, tunnels, bridges, airports, dams, mass rapid transit systems, subways, and railroads.

(2) Expertise market: FCC's expertise markets, which are based on both the types of projects and product varieties and analyzed by the executive managing directors, focus on several sectors: for commercial building projects, FCC provides services, such as design, engineering, and general contracting; for residential building projects, it provides services, such as design, engineering, general contracting, investment, real estate, and financing; for public sector projects, such as highways, tunnels, bridges, subways, railroads, and mass rapid transit systems, it provides engineering and general contracting services.

(3) Growing market: FCC's growing markets, which are also based on both the types of projects and product varieties and analyzed by the marketing managers, focus on the following sectors: for residential building and hospital projects, some services are growing rapidly, such as design, engineering, general contracting, construction management, investment, real estate, and financing; for highway, tunnel, bridge, airport, dam, mass rapid transit system, subway, and railroad projects, some services are growing, such as design, engineering, general contracting, construction management, investment, and financing.

The combined segmentation matrix of FCC is the combination of the segmentation matrices in original market, expertise market, and growing market, as

shown as Figure 6-8. The highlighted parts of the figure represent the areas which FCC has decided to emphasize and to begin to build capabilities.

- **The Three Generic Strategies:**

FCC's generic strategy is the overall cost leadership strategy. But, since the clients have begun to ask for higher quality and more services, FCC should modify its generic strategy to be the differentiation strategy which emphasizes in both quality and services. Moreover, FCC's generic strategy can take two different points of view---project types and geographic regions.

From the point of view of project types, FCC's generic strategy now focuses on a broad target market including commercial buildings, residential buildings, hospitals, highways, tunnels, bridges, airports, dams, mass rapid transit systems, subways, and railroads. However, in order to maintain a critical mass of capabilities and energy to handle clients' different requirements, the firm should concentrate on related projects and give up some original strategic markets, such as hospitals and dams. In other words, FCC should focus on a narrow target in the types of projects shown in Figure 6-9.

From the point of view of geographic regions, FCC's current generic strategy focuses on too narrow a target market---Taiwan. Because of the finite size of this market and in order to seek potential job opportunities, FCC should extend its construction areas to other developing countries in Asia. Specifically, the firm should focus on a broad target in the geographic regions, shown in Figure 6-10.

A: expertise market

B: original strategic market

C: growing market

	Private Sector Clients					Public Sector Clients						
	Commercial		Residential		Hospitals	Highways	Tunnels	Bridges	Airports	Dams	MRT	Subways/ Railroads
	Buildings		Buildings									
	Bid Work	Nego. Work	Bid Work	Nego. Work	Bid Work	Bid Work	Bid Work	Bid Work	Bid Work	Bid Work	Bid Work	Bid Work
Design	A, B	A, B	A, B, C	A, B, C	B, C	B, C	B, C	B, C	B, C	B, C	B, C	B
Engineering	A, B	A, B	A, B, C	A, B, C	B, C	A, B, C	A, B, C	A, B, C	B, C	B, C	B, C	B
General Contracting	A, B	A, B	A, B, C	A, B, C	B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B, C	A, B
Construction Management	B	B	B, C	B, C	B, C	B, C	B, C	B, C	B, C	B, C	B, C	B
Investment	B	B	A, B, C	A, B, C	B, C	B, C	B, C	B, C	B, C	B, C	B, C	B
Real Estate	B	B	A, B, C	A, B, C								
Financing	B	B	A, B, C	A, B, C	B, C	B, C	B, C	B, C	B, C	B, C	B, C	B

Figure 6-8. The Combined Segmentation Matrix of FCC

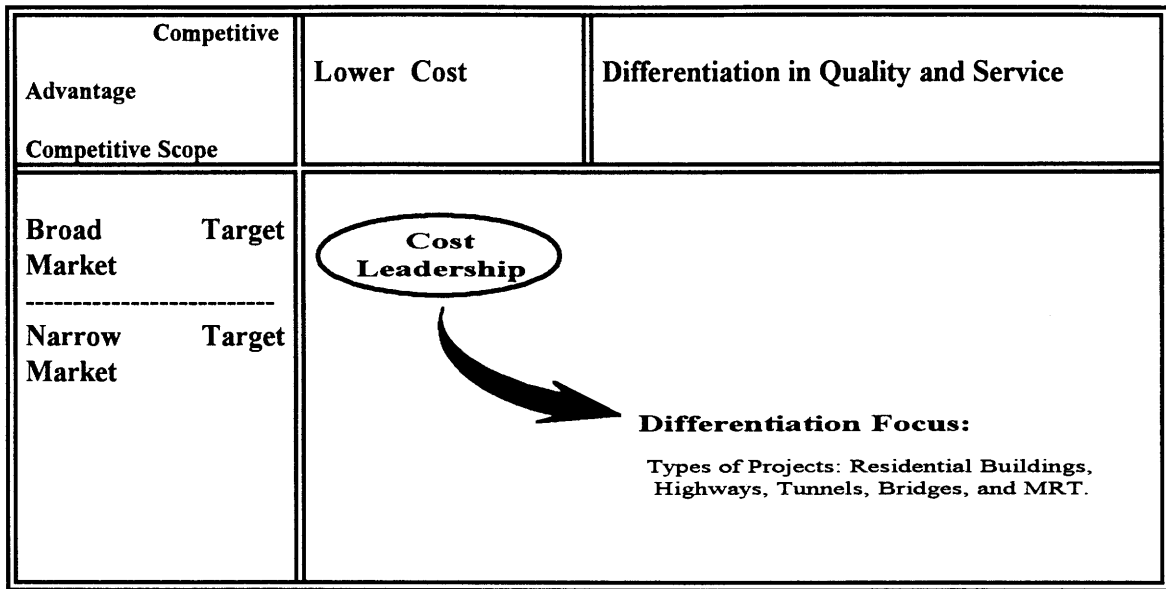


Figure 6-9. The Adjustment of the Three Generic Strategies of FCC from the Point of View of Type of Project

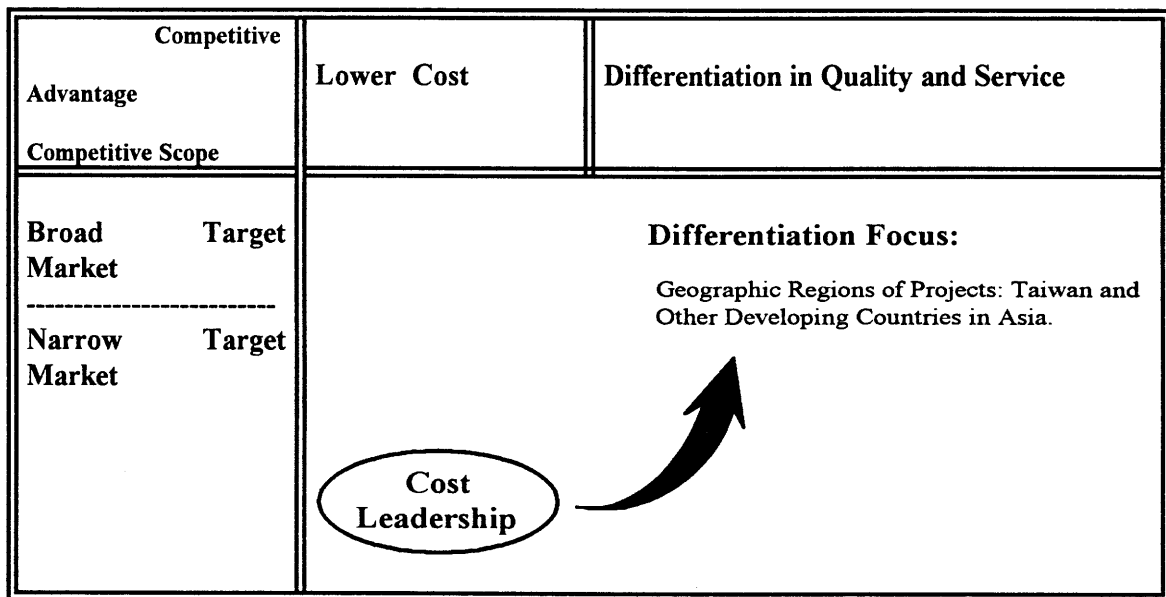


Figure 6-10. The Adjustment of the Three Generic Strategies of FCC from the Point of View of Geographic Region of Project

- **The Value Chain:**

According to the preceding analyses and discussions, FCC can set up its final corporate strategy and identify its value chain activities. The general ideas about which activities in the value chain to modify and which activities can potentially contribute to differentiation from other existing firms in Taiwan, are based on the suggested corporate strategy, as shown in Figure 6-11.

In order to improve the quality of projects, in FCC's value chain, the technology development section has been upgraded to the second level of the support activities. This means the company emphasizes its technology development over human resource management and procurement. For example, the main activities of technology development are computerizing the estimating system, developing a bidding information system, learning advanced construction management skills from developed countries, and establishing a multi-functional responsive database information system.

Additionally, in order to explore FCC's potential markets, the marketing & sales is located in the first section of the primary activities. This means the company also gives high priority to and emphasizes its marketing performance. For instance, the main activities of marketing and sales are recruiting more highly qualified marketing managers, hiring more salespeople, selecting powerful advertising media, and establishing good relationships with local governments and potential clients in private sector projects.

6.1.5. Recommendations for FCC

The following list contains a summary of the recommendations to solve each of the five problems outlined at the preceding paragraph 6.1.2.

(1) Narrowing the scope of mission: FCC's expertise, strategic, and growing markets were shown in Figure 6-8.

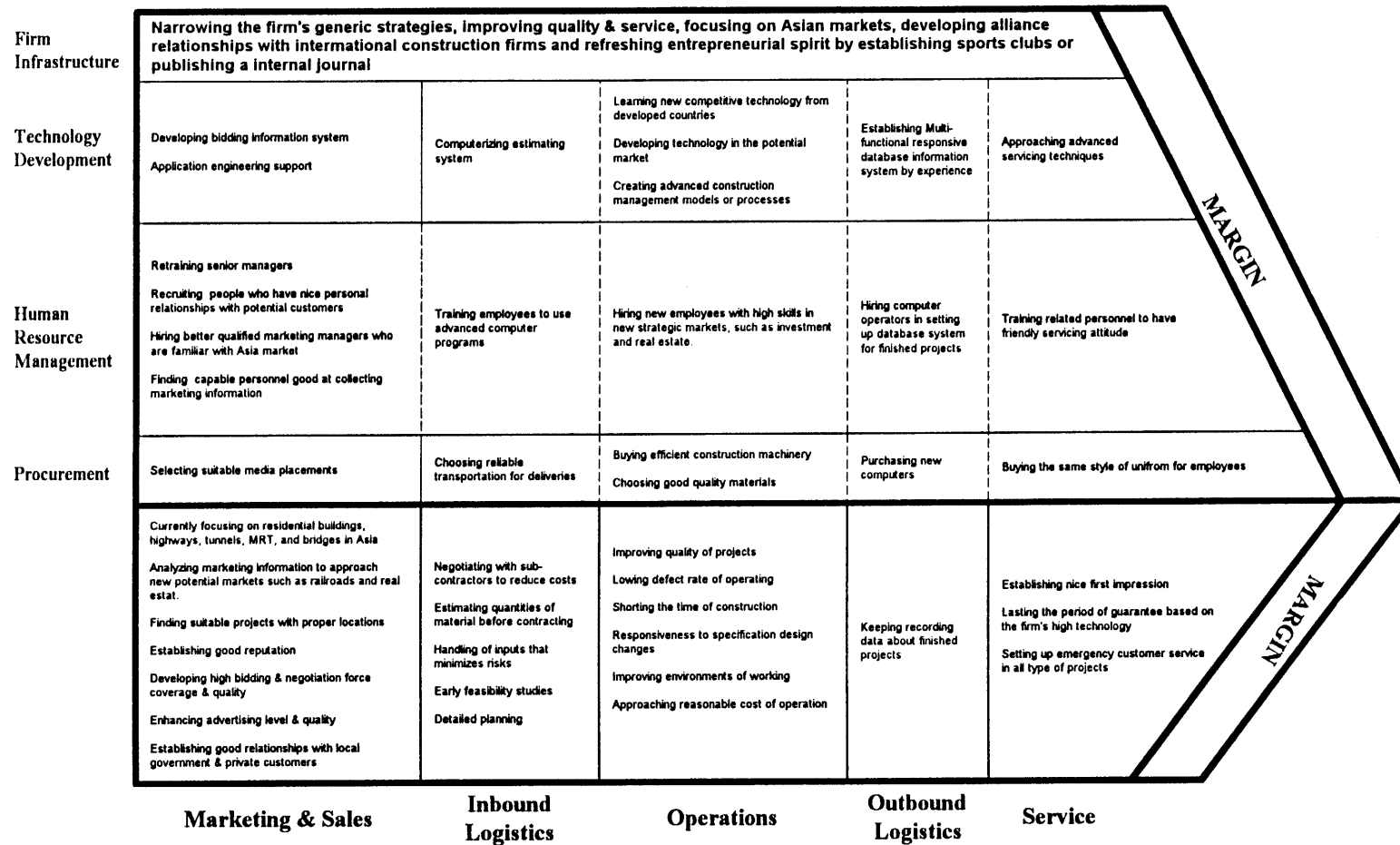


Figure 6-11. The Value Chain of FCC

Because of the downturn of some of the firm's expertise markets, FCC should *not* focus its attention on other uncertain growing markets or on traditional markets that are declining and/or very competitive. For example, some growing markets, such as hospitals, airports and dams, are *uncertain* for the future or are not in the areas of the firm's strengths. Consequently, FCC should give up such kinds of markets.

FCC should also give up some strategic markets that are declining markets, such as commercial buildings, subways, and railroads. In other words, the firm should concentrate on specific projects which are in its expertise markets and which are still growing, such as residential buildings, highways, tunnels, bridges, and mass rapid transit systems. Additionally, the firm should broaden the geographic dispersion of markets such as to developing countries in Asia instead of just focusing in Taiwan. Thus, it is necessary to change the scope of the firm's target market.

(2) Hiring new marketing managers or training junior managers: It is necessary for FCC to find at least one skilled marketing manager to rearrange its future markets either by hiring a new senior marketing manager, or by training one of its junior managers with has exhibited high potential capabilities.

(3) Refreshing employees' attitudes: This includes two parts. One is *company morale and spirit*. In order to strengthen employees' loyalty to the company, it is very important that every employee sufficient morale and spirit to serve his or her company. For instance, some Japan companies have their own "company song", and every morning all employees must get together to sing the company song. In this particular situation, it is not necessary for FCC to create a company song. But it may be meaningful for FCC to adopt other alternatives such as creating its own uniform for employee; establishing an employees' sports club; or publishing an internal journal that outlines the firm's primary mission and key aspects of its spirit such as the goals of company services, short articles

relating employees' thoughts about the company, and so on. The main purposes of these ideas are to enhance the communication among employees, strengthen their company morale, and increasing their commitment to participating in the firm's activities.

The other aspect of employee attitude is *entrepreneurial drive*. In order to encourage employees' desire to penetrate new markets and take the lead in creating new related businesses, FCC must improve its award system for employees. For instance, the firm could raise the sharing rate of project bonuses. In the meantime, FCC has to work especially hard to enhance the entrepreneurial drive of its senior managers who don't have enough energy to handle the challenges of new markets and businesses; or to re-educate junior managers with potential capabilities to promote their entrepreneurial drive.

(4) Retraining operating managers: If FCC wants to achieve its strategic markets, it needs to develop more highly qualified operating managers who are capable of overcoming the problems of large, complicated projects. This could be done both by new hires and by designing managerial training courses to educate existing managers in new technologies and skills. FCC should focus especially on the markets which are growing markets but are *not* currently one of its expertise markets.

(5) Re engineering general and administrative expenses: In order to slow down the increasing expenses, it may be necessary to cut back general and administrative expenses. FCC must re-evaluate its business processes and its personnel, and improve its human resource management. By redesigning business processes, increasing sales revenues, rearranging employees, firing some redundant employees, or reducing salary, the firm can avoid financial deficit.

However, in order *not* to stick to the traditional diversified organization, which is less flexible than an innovative organization, FCC should make every effort to implement these recommendations. According to one old Chinese saying, "doing something is

always better than doing nothing." The proposed solutions, at least, are reasonable and can be implemented with a minimal effort by FCC.

6.2. CONCLUSIONS

In the past, most construction firms emphasized their capability of construction rather than management, even though the construction industry is management-intensive industry as illustrated by the large number of decisions which must be made from day to day, on construction site as well as within the organization itself. Recently, however, management has been identified as one of the most important determinants of the capacity as well as capability of construction firms; and, a well defined management policy must base on effective strategic planning.

This research has reviewed the processes of strategic planning in different organizational structures and the applications of analytical tools for strategic planning. All these analyses are for conducting effective strategic planning and for achieving organizational effectiveness.

Basically, a company's organizational structure must change as it grows. If a company doesn't choose a right organizational structure, it may eventually go out of business or walk into a dead end. For example, if a small research company chooses a complicated and formalized organization structure for its young age and limited size. It may will flounder in rigidity and bureaucracy for several years and become vulnerable to being acquired by a larger company. Hence, how to select a suitable organizational structure is one of the most vital issues for a company if it is to survive in the competitive business world and successfully to face the exciting challenges of the future. This pertains not only at a company's birth stage but also at various stages in the future growth of the organization. In short, how to evolve an original organization structure into another suitable structure is a critical issue at each phase of a company's growth.

In Chapter 5, the basic organizational structures were discussed and were shown in Figure 5-14. Most construction company organization structures do *not exactly* fit any of these models. Rather, they move around the inside of the pentagon and are located by a set of forces, which are represented by each basic organizational structure. These forces are direction, efficiency, proficiency, concentration, and innovation, as shown as Figure 6-12.⁴⁶

(1) The force for *direction* is represented by the simple organization. Direction means to establish a strategic vision. Without direction, the various activities of a company cannot easily work together to achieve a common purpose.

(2) The force for *efficiency* is represented by machine organization. Efficiency means to standardize and formalize the process of job execution. Without some concern for efficiency, a company cannot improve its productivity and compete with other existing firms.

(3) The force for *proficiency* is represented by the professional organization. Proficiency means to carry out tasks with high levels of knowledge and skill. Without proficiency, the difficult work of a company cannot get well done.

(4) The force for *concentration* is represented by the diversified organization. Concentration means to focus each individual unit's effort on a particular market that it has to serve. Without concentration, a company cannot handle the diversification tendency for growing in the future.

(5) The force for *innovation* is represented by the adhocracy organization. Innovation means to learn and discover new businesses and services for a company itself and its clients. Without innovation, a company will remain in its current situation and be unable to cope with the challenges from the changes of internal and external environments.

⁴⁶Adapted from Henry Mintzberg, *Inside Our Strange World of Organizations*, Free Press, 1989.

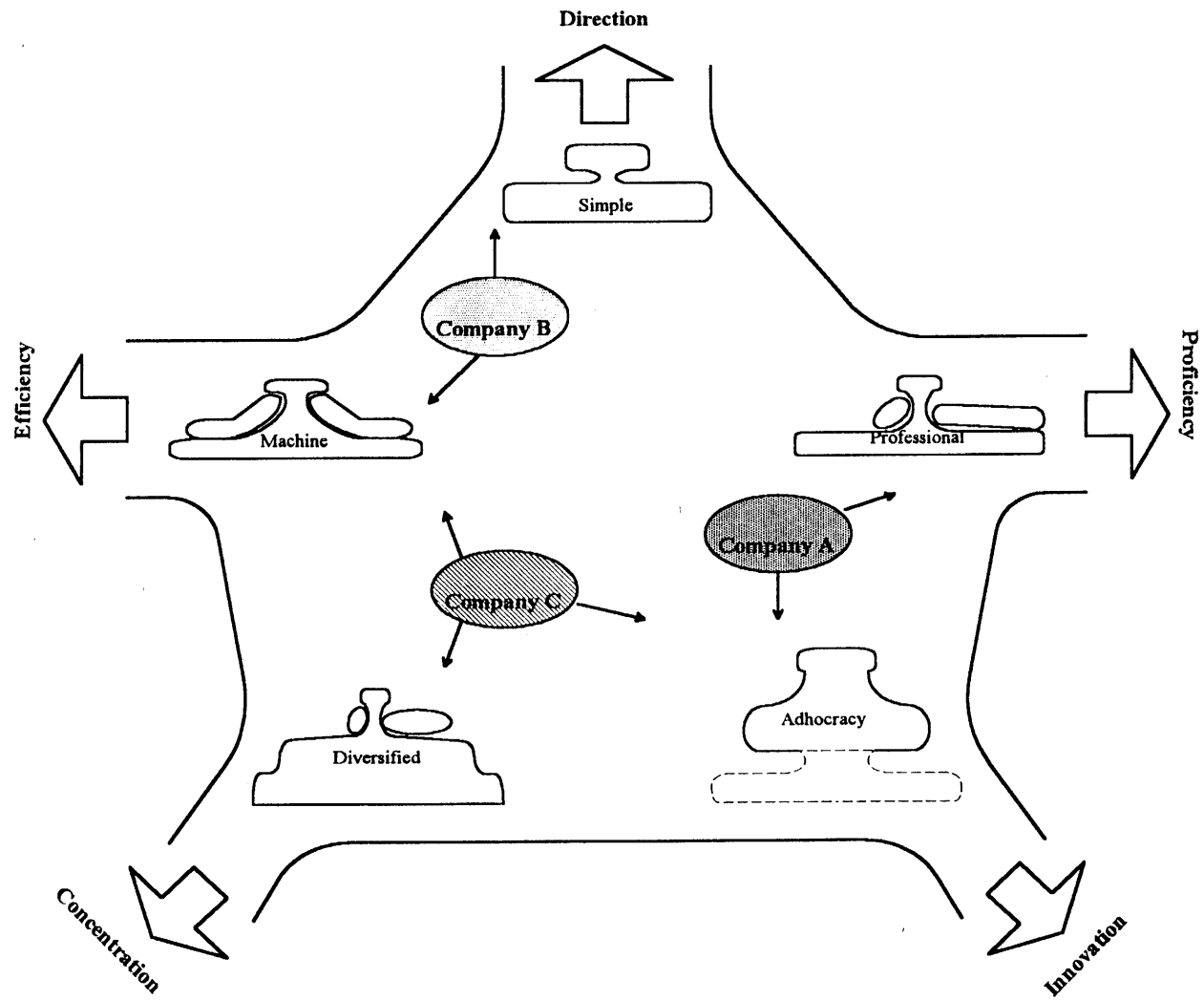


Figure 6-12. The Influential Forces to An Organizational Structure in the Pentagon

However, different emphases in the preceding forces will result in various organizational structures. Every construction company has its own characteristics and niche marketplaces. By identifying the process of strategic planning in its own organizational structure and choosing suitable analytical tools for strategic planning, construction companies can tackle challenges in their competitive arenas efficiently and effectively.

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